

PUBLIC HEALTH



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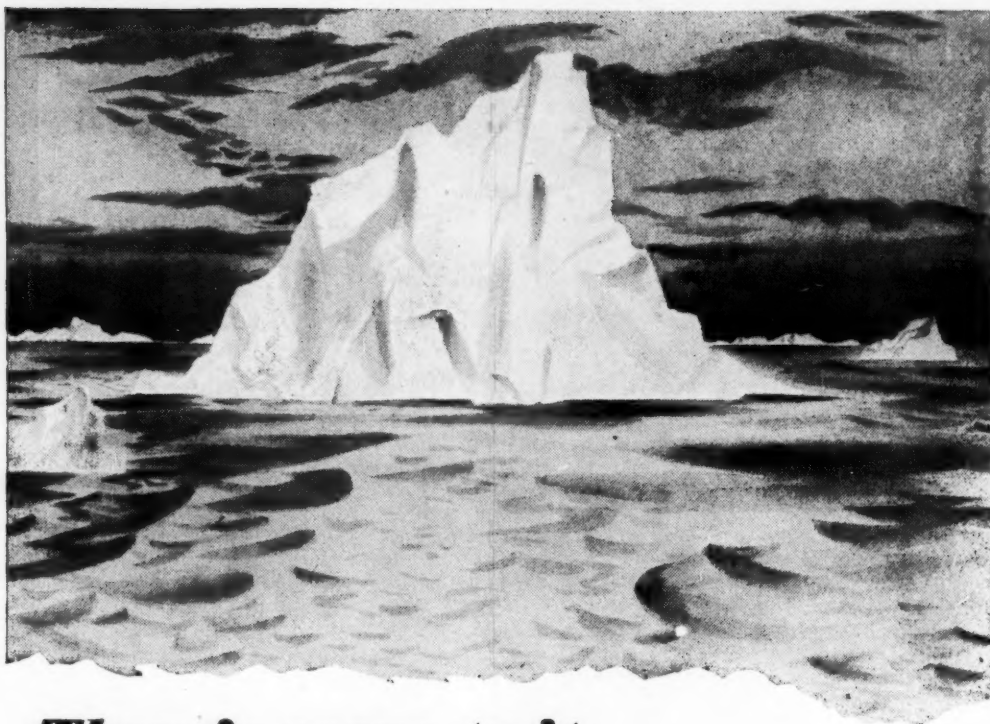
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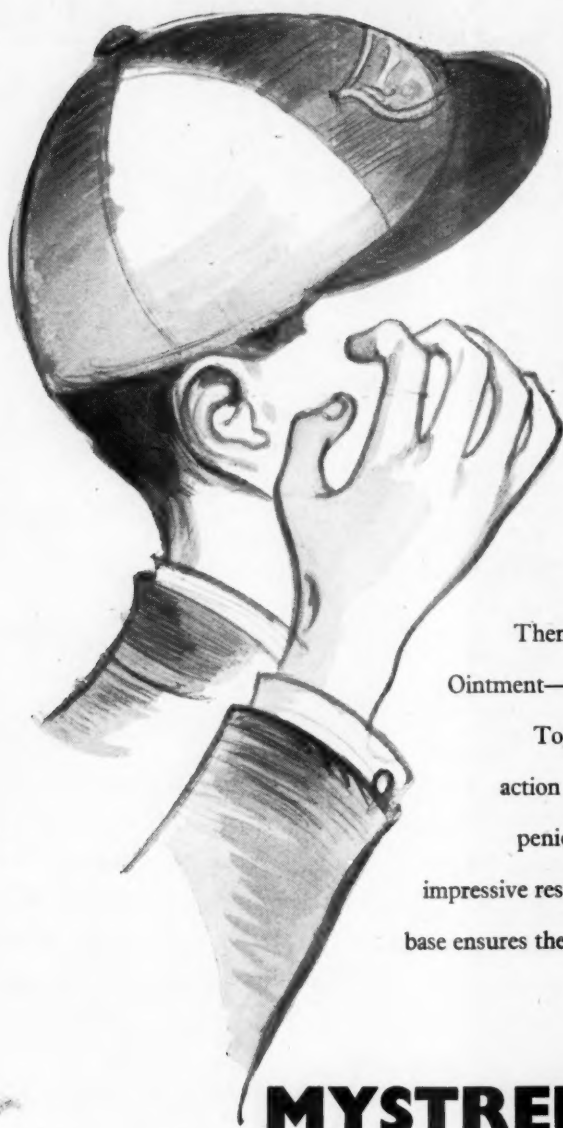
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EDITORIAL

Farewell and Good Wishes

Editors, though held responsible for much anonymous comment in the journals which they conduct, and indeed for much else which they have not written themselves, are traditionally shy and impersonal creatures concealing themselves, like monarchs and some other high functionaries, behind the words "we" and "us." But we are human after all and on this occasion, namely the last issue which the present editor will bring out after 20 years in the office (less four of absence on other duties during the last war), feel some pardonable emotion at the parting. From the point of view of the present writer, PUBLIC HEALTH had its heyday in the years 1935-39, when publishing conditions weremuch less restrictive than they became during and since the war, and its appearance was more expansive—though not expensive—than of recent years. But we believe that throughout those 20 years this journal has carried in its pages much valuable contemporary thought and experience put on paper by the leading figures in British public health, and that it has reflected its times and served its generation faithfully.

The editor of a journal which is the official organ of a learned society must, we believe, always bear in the forefront of his mind the fact that the journal he edits is the only regular link between its sponsoring body and many of the members. It must thus try to give a general picture of the society's life and doings as well as reproducing the pick of the addresses and papers delivered to meetings of the Branches and Groups. In a subject so catholic as public health, one journal can only deal with a selection of the material which awaits perpetuity in print. Realising how "the iniquity of oblivion blindly scattereth her poppy" over the spoken word, the editor must feel acutely conscious of his authority and responsibility in giving space to this or that contribution. This task and privilege the present writer passes on with the greatest confidence and good wishes to the new Editorial Board, which will take over PUBLIC HEALTH with the beginning of another volume next month.

So, at the close of this 99th year of the Society's life and 68th volume of PUBLIC HEALTH, the time has come to thank most sincerely all those many people who have assisted the retiring editor so freely during his term, to the printers who

have printed each number and to the members of the Society and other readers who have shown such forbearance over our editorial shortcomings.

Three Leaders Pass On

As this issue of PUBLIC HEALTH has been prepared for the press there has come in the sad news of the deaths in close succession of three men who have made great contributions to public health and preventive medicine. Two of them, Provost R. M. F. Picken, of the Welsh National School of Medicine, and Dr. Andrew Topping, Dean of the London School of Hygiene and Tropical Medicine, were Presidents of the Society of Medical Officers of Health in the sessions 1944-45 and 1952-53 respectively. The third, Lord Horder, though not directly connected with the Public Health Service, did as much as any medical man of his generation to promote many causes which have a strong connection with the work of medical officers of health for the good of the community.

Drs. Picken and Topping shared the unusual distinction that they were elected to our highest office whilst in academic posts, for both had remained strong "Society men" after their careers had diverged from local government public health. Picken's main contributions were made in this country whilst Topping's were as important in Western Europe and in the Colonies as at home, but both were of the stature which has enhanced the public health branch of the profession. One interesting contrast in their methods comes to mind. Picken was a believer in the need to bring the preventive and curative branches together by reason and diplomacy, witness the great esteem in which he was held in the Council of the British Medical Association. Topping, whose London period coincided with the inception of the National Health Service, had his deepest feelings stirred by the wrong direction in which he felt the service was going and his famous utterances on this subject, whilst not perhaps diplomatic, came from his heart and gained both a hearing and respect. Lord Horder in the medico-political field was another who was not happy about aspects of the N.H.S., so his part in the Fellowship for Freedom in Medicine is still mainly remembered; but we recall his long and courageous championship of the other causes which have been or will be won in the interests of the national health.

Full obituary notices of our two Past Presidents whose loss is so lamented will appear in the next issue.

OBITUARY

JAMES BONNELL HOWELL, M.R.C.S., L.R.C.P., D.P.H.

Dr. J. B. Howell, who died on August 10th, aged 77, after a short illness, was medical officer of health for the Metropolitan Borough of Hammersmith from 1914 to 1942 and a well-known and respected figure in London public health for many years. A native of Llanely and medically educated at University College Hospital, he qualified with gold medals in surgery and midwifery in 1905 and took the D.P.H. in 1911. His first posts in public health were at Stepney and Finsbury and he spent the rest of his career, with a break in the first war as Major R.A.M.C., in Hammersmith, where he built up an excellent public health scheme, including tuberculosis and maternity and child welfare. He was also a lecturer in public health, at the West London Hospital and (with Dr. H. R. Spitta) at St. George's Hospital. A good London Welshman, Dr. Howell's reputation amongst English and Scottish as well as Welsh colleagues was shown by his election as the first chairman of the Metropolitan Borough Medical Officers' Committee in 1930. He was also President of the Metropolitan Branch of the Society which he joined in 1913. He leaves a widow, son and daughter, to whom we extend deep sympathy.

EVELYN CHRISTINA McDONALD MCGREGOR,
M.B., CH.B., GLASGOW D.P.H.

The death occurred on August 26th, after a short illness, of Dr. Evelyn McGregor, at the age of 60. She was deputy divisional medical officer in L.C.C. division four (Hackney, Shoreditch and Stoke Newington) and between 1930 and 1948 served in the borough of Shoreditch as senior assistant to the late Dr. Maitland Radford and later as deputy M.O.H. She graduated at Glasgow University in 1919 and took the D.P.H. in 1922, subsequently serving as A.M.O. in Paisley and Nottinghamshire before coming to London. She was a Fellow of the Society from 1930, and took a very active part in the work of the Maternity and Child Welfare Group and other bodies connected with that field, where her gracious and charming personality will be much missed by her many friends.

ERNEST HAROLD WALKER, M.B., CH.B., V.U.MANCH., D.P.H.

The death on August 18th, aged 67, of Dr. E. H. Walker, M.O.H. for Stretford borough from 1923 until his retirement last year, is mourned by his many friends in the North Western Branch of the Society, where he was held in particular esteem and affection of his ability and personal quality. He held an Agnew Scholarship at the Western University of Manchester where he graduated, M.B., Ch.B. in 1914, and took the D.P.H. in 1919. Meantime he had served as A.M.O. in Salford and Derby, and as T.O. in Blackburn. He joined the staff of the Lancashire health department in 1919 and in 1923 became M.O.H. of Stretford, then an urban district. In 1932 he was appointed also as port medical officer for the Port of Manchester, a post which he also held until last year. In 1948 he also became divisional M.O. for Lancashire No. 16 Division (Stretford and Urmston M.O.) and for many years he was lecturer in public health administration at Manchester University, teaching both undergraduates and D.P.H. Students.

He joined the Society in 1920 and was President of the North Western Branch for the Session 1947-48, when he took as subject for his address the Manchester school of public health. He suffered a coronary thrombosis shortly before he retired and had to live very quietly during the past year. We extend our sympathies to his widow and two daughters.

HEALTH HAZARDS IN THE ATOMIC AGE*

By W. M. LEVITT, M.D., F.R.C.P., F.F.R., D.M.R.E.

Radiation hazards to the population may arise in a variety of ways, most of which are shown in Table I.

TABLE I

RADIATION HAZARDS TO POPULATION

1. *Production and Handling of Radioactive Isotopes*— α , β , γ and neutrons.
2. *Medical Uses of Radioactive Substances*— β and γ .
3. *Industrial Uses of Radioactive Substances*—

Luminising	}	α , β and γ
Static elimination		
Thickness gauging		
Tracer work		
4. *Medical Radiography* (also in trade, as in shoe-fitting)— x -rays.
5. *Industrial Radiography*— x - and γ -rays
6. *Radiotherapy*— x -rays and γ -rays.
7. *Disposal of Radioactive Wastes*— α , β and γ .
8. *Atomic Warfare*—

Primary Radiation from Explosion Centre— γ and neutrons.
Secondary from Fall-Out— α , β and γ .

The hazards consequent upon the peaceful uses of atomic energy and x -rays fall roughly into three classes. In the first class are those arising from the use of massive x - and gamma-ray equipment which can be more or less remotely controlled, as in radiography, whether medical or industrial and x -ray and telecurie therapy. Protection is necessary not only from the direct beam of radiation but also from radiation scatter by the materials irradiated and by the air. Radiotherapy and industrial radiography are carried on for the most part in rooms the walls of which are suitably protected, the operator operating the machine from outside. In such cases protection depends mainly upon the design of the operating room and if this is satisfactory safety is easily achieved. In medical radiography, and especially fluoroscopy, the work has to be carried on close up to the machine, and then protection depends not only on the design of the machine itself but also upon the observance of a strict code of rules by the workers. The same applies to certain classes of industrial radiography in which very large castings have to be radiographed by means of a mobile x -ray machine operated from a lead-protected cabin.

In the second class are the hazards due to the handling of radioactive substances in the course of their preparation, and in their use in medicine and industry. These hazards arise in two ways: firstly, by direct exposure of the hands and other parts of the body in proximity to the radioactive sources to the radiations emitted by them, and secondly, from the contamination of surfaces and articles with radioactive material from unsealed containers in the laboratory or in hospital practice. Very serious results may follow the ingestion or inhalation of radioactive material as a result of such contamination. The tragic series of cases reported by Martland in the United States in 1929 is an example of the ingestion hazard in luminous dial workers. Bone necrosis, sarcoma, and blood changes as late effects of the long continued ingestion of small doses of radium resulted in the death of a number of women workers.

The hazards in the handling of radioactive material may include alpha, beta and gamma radiations, and in the case of workers near the atomic pile, neutrons.

The third class of hazard differs from the two just discussed in that it affects the population at large rather than the individual workers handling the radiation sources. Such hazards may result from the disposal of radioactive wastes from atomic piles, and from industrial and medical uses of radioactive substances, alpha, beta and gamma radiations may be concerned.

Protection against these various classes of hazard raise different types of problem and I shall return to these later on in discussing the general question of protection.

The Industrial Uses of Radioactive Substances

The luminising of instrument dials by means of radioactive substances is a well established industrial process which has been in use for a great many years. In the past few years, the advent of artificial radioactive isotopes has vastly extended the use of radioactive substances in industry. These new uses are diverse, but they fall roughly into three types. In the first type are those processes depending directly upon the ionising effect of radiations on air. One of the difficulties encountered in the handling for manufacture of a great variety of substances, fabrics, plastics, sheet aluminium and even pharmaceutical pills, is the accumulation of static charge on the surface of the substance interfering with processing, or, in the case of certain fabrics, resulting in the attraction of dirt from the atmosphere when left on the loom overnight. When the air in the neighbourhood of the charged surface is exposed to ionising radiation, it becomes conducting and the static charge can leak away to earth, thus immediately obviating the difficulties in handling. Secondly, there are those processes depending upon the known penetrating power of beta radiation of a given energy in given substances. If a layer of material to be tested is passed along a gap between a beta source of known energy and a measuring instrument, any variation in the thickness of the material as it passes will be reflected in a variation in the indication of the measuring instrument, due, of course, to the variation in the absorption of beta radiation. Thirdly, radioactive isotopes are used in tracer work, much as they are used in tracer work in medicine. For example, a recent use has been in the gauging of metal wear by incorporating a small proportion of radioactive material with the metal so that the rate of wear under different conditions can be estimated.

Atomic Warfare. I have only included this heading in Table I for the sake of completeness. I understand that most, if not all members of this Society have attended atomic warfare course at Alverstoke, and I shall not refer further to this aspect of radiation hazards.

Types of Radiation Injury

The types of injury that may result from exposure to ionising radiations in their various forms, may be classified as in Table II.

TABLE II
TYPES OF RADIATION INJURY

Skin Injury

- (a) *Radioactive Substances*—Medical and industrial uses, mainly β and γ .
- (b) *Radiography (Medical and Industrial)*— γ and x-rays.
- (c) *Radiography*—x- and γ -rays.
- (d) *Atomic Explosion* Direct—mainly α , also neutrons. Indirect—Fall-out, etc. mainly and neutrons

Constitutional Effects (Haemopoietic System)

- (a) *External Radiation*—Extensive exposure to α , β , γ , x-rays or neutrons from any of above causes.
- (b) *Radiation Within the Body*—
 - (i) Cutaneous absorption of radioactive material.
 - (ii) Inhalation of radioactive material.
 - (iii) Ingestion of radioactive material

Alimentary Tract Injury

Ingestion of Radioactive Material (α , β and γ).

- (a) In medical and industrial handling.
- (b) Atomic explosion—fall-out onto food, fingers, etc.

Respiratory Tract Injury

Inhalation of Radioactive Solids or Gases (α , β and γ)

- (a) Medical and industrial handling.
- (b) Atomic explosion.

Tissue Injury from Selective Deposition

Ingestion or Inhalation of Radioactive Material (α , β and γ) in Medicine, Industry or after atomic explosion.

Disorders of Growth

Late Effect of Exposure to x- or γ -rays, e.g. (from radiotherapy or x-ray exposure in shoe-fitting in children).

Gonadal Effects

Sterility and Injury to the Hereditary Material—

- (a) External radiation reaching the gonads, e.g., in occupation exposure, shoe-fitting (x- and γ -rays).
- (b) Selective absorption of radioactive material in gonads (α , β or γ).

Eye Effects

Cataract

Any form of ionising radiation reaching the lens.

It will be unnecessary to deal in detail with all these various types of effects, most of which are covered in the Alverstoke course. Since, however, this course was mainly concerned with atomic warfare and we are here at least equally concerned with the effects of occupational exposure, it will be necessary to consider the differences that exist in acute and in chronic (occupational) exposure respectively. These differences have been most fully studied in the case of the skin, in which plentiful material has been available, on the one hand from acute exposure in therapeutic irradiation and in atomic warfare, and on the other hand in chronic occupational exposure in radiologists, radiographers, x-ray tube manufacturers and the like. It will also be necessary to consider the respective differences in the results of acute and chronic exposure on the blood picture.

The effects of exposure to radiations on the skin fall into four fairly clear-cut groups which are shown in Table III.

TABLE III
CLASSIFICATION OF RADIATION INJURIES TO SKIN

1. *Acute Radiodermatitis.* An acute inflammatory process resulting from the rapid exhibition of large doses of radiation.
2. *Chronic Radiodermatitis.* A chronic hyperplastic condition often ending in carcinoma. Results from repeated small doses of radiations sustained over a long period.
3. *Late Sequelae of Acute Radiodermatitis Skin Atrophy; Telangiectasia; Late Necrosis.* Due to progressive vascular changes initiated by the radiation.
4. *X-ray Carcinoma.* Most commonly a late stage of chronic radiodermatitis but rarely may be a late sequel of a severe acute radiodermatitis.

It will be seen that while acute radiodermatitis is an inflammatory condition which may proceed to vesication and necrosis, chronic radiodermatitis is a hypertrophic or hyperplastic condition characterised by thickening of the skin, hyper keratosis, overgrowth of the nail fold, and of the nail bed, by indurated fissures and eventually by carcinoma. The late effects of acute radiodermatitis, although also chronic in their course, differ from occupational radiodermatitis in that the late effects are not hypertrophic but atrophic in nature—skin atrophy, often with thin, tissue paper like scarring, with a tendency to necrosis upon slight trauma. Radiation carcinoma is almost a natural sequel of chronic radiodermatitis if the condition persists for long enough, while, as a result of acute x-ray dermatitis, it is very rare.

It is, of course, possible for a patient who is subject to repeated small doses of radiation and is already showing the changes of chronic radiodermatitis to sustain a larger dose and thus have superimposed upon his chronic condition an acute dermatitis. This has always to be borne in mind in the inspection of patients who are exposed to radiation hazards. Generally speaking, however, the conditions to watch for in suspected occupational dermatitis are dryness and thickening of the skin, and where the nails are exposed, rigging of the nails and overgrowth of the nail-fold. Epilation and telangiectasia are also characteristic signs.

The Blood Changes

Here, again, at any rate in the early stages, the changes are very different according to whether the exposure to radiations has been sustained rapidly in large dosage or slowly over a long period by means of repeated small doses.

* Address to the Home Counties Branch Society of M.O.H., February 11th, 1955.

You will recollect that in the first case the changes are total leucopenia with relative lymphopenia, the lymphopenia being the first observed change, followed at a later stage by depression of the granular cells and later still of the erythrocytes, and of haemoglobin if the dosage is sufficiently high. In chronic exposure, on the other hand, the early changes are not a relative lymphopenia but a relative *increase* in the lymphocytes so that these tend to approach equality with the granular cells. At the same time there may be some increase in the total leucocyte count.

There is not time here to discuss the possible explanation of these variations in effect, but their character is well established. In the late stages of occupational exposure when serious damage has occurred there is a general leucopenia with a relative lymphopenia as in acute exposure. Clearly, somewhere on the journey from the first to the late stage, the patient, who will be already on the way to serious damage, passes through a period during which his or her count will be approximately normal. It will thus readily be seen that no great reliance can be placed upon serial blood-count examinations as an index of radiation damage, since, until a later stage there are no changes which can be accurately co-related with the degree of damage.

It has long been the practice to insist upon periodic blood-counts in radiological workers, but it is doubtful indeed if these have been of any help in assessing or avoiding injury. It seems likely that the only really certain guide in the blood count to radiation injury is marked leucopenia—something of the order of 2,000–2,500—with relative lymphopenia, or, the appearance of blast cells—the so-called shift to the left—in the white count, and these changes only occur as a result of severe injury.

It has long been the practice to refuse as candidates for training in radiography those with blood counts below 5,000 leucocytes per cu. mm. or 1,500 lymphocytes per cu. mm. However, an investigation carried out at Harwell and published by Turner in 1953* casts serious doubt on the validity of these standards. Their adoption was based upon the assumption that these were minimal levels for the efficient operation of the antibacterial defence mechanisms of the body. In order to test this view Turner divided his workers into two groups, one group with a total leucocyte count below 5,000 cu. mm. and lymphocytes below 1,500 and the second with counts in the accepted normal range over 4,500 total leucocytes and over 1,500 total lymphocytes. Not only did the leucopenic group show a lower incidence of infection generally, but when they did become ill, their recovery was more rapid than in the so-called normal group. Turner concluded that only a careful clinical assessment of the general health taken in conjunction with blood count, and not the blood count alone should be the basis of the decision as to whether a person with a "leucopenic count" should be accepted for employment affording a radiation hazard.

The Genetical Effects of Radiation

It is only possible to refer very briefly to this aspect of radiation injury in a general survey of this sort. The whole subject has been discussed recently in an important paper by Prof. Mather, who concludes that while it would seem very unlikely that the quantity of radiation reaching the gonads of this population today is anywhere near the quantity needed to double the mutation rate nevertheless it may not be genetically negligible. Mutated genes may alter any character of the individual, anatomical, physiological or mental, and generally speaking, mutational changes are for the worse. Since most genes are recessive, in that they have no effect, or only a very small effect, when heterozygous, the display of the genetic injury and its elimination may be very slow, perhaps 30 or even more generations. As Prof. Mather says, "People may be dying today because of mutations which occurred before the Norman Conquest."

There is one characteristic of the radiation injury to genes which must never be forgotten by all those having responsibility for the control of radiation hazard. While in all other living tissue a greater or lesser degree of recovery follows the application of sub-lethal doses of radiation, so that cumulation is imperfect and the dose effect related to the time-spread, in the case of the gene, summation of

every dose sustained throughout life is complete. It matters not whether the dose be given in small or large fractions, at short or long intervals, over a period of days, weeks, or years, the final result will be as damaging genetically as if the dose had been given in a single massive fraction all at once.

The Control of the Radiation Hazard

General Considerations

The increasing burden of radiation which is being laid upon the population, constituting, as it does, a threat not only to the individual, but also to the future of the race, clearly demands effective control. Moreover, this control will have to be the more stringent the more the use of radiations extends into technical and industrial processes carried out by workpeople without scientific training or indeed without any real appreciation of the attendant risks.

Looking over the present field of use of ionising radiations we find that there is as yet no consistent pattern of control. Nevertheless, partly as a result of certain legislative measures and partly as a result of the voluntary observance of protection recommendations to which I shall refer later, it is satisfactory to find that up to the present, standards of protection, are on the whole, high. There are some gaps, and one serious gap, namely shoe-fitting by radiography, I shall discuss later.

Legislative Control

The Radioactive Substances Act, 1948, has as its object the protection of the health of work people and the public from the effects of exposure to radiations of radioactive substances, natural and artificial, and of x-radiations. The Act provides for the control of the import and export and of the sale and supply of radioactive substances (ss. 2,3); for control of the use of radiating apparatus for therapeutic purposes (s.4). It also provides for the making of Regulations and codes of safety precautions to be observed in premises in which radioactive substances or apparatus are used (s.5). It will be seen that the provisions of the Act are wide, and, although no Regulations have so far been made under it, strict and comprehensive control can be provided by it over the whole field of radiations.

The Factories (Luminising) Special Regulations, 1947, made by the Minister of Health under Section 60 of the Factories Act, 1937, provide a complete and comprehensive safety code for the handling of radioactive compounds for luminising. These regulations provide for the control of luminising operations in all factories in which this work is carried out, and requires that any factory undertaking new luminising shall give notice to the Inspector of Factories for the district 14 clear days before commencing such work. The Regulations prohibit the employment of persons under the age of 18 years in luminising and fix a maximum working week of 48 hours. Regulations with regard to continuity of employment impose, for practical purposes, a break of at least three months after 12 months work at luminising or in cleaning in a luminising factory. Processes other than luminising may not be carried out in any room in which luminising is carried out. The Regulations for detailed control of the actual technical operations are comprehensive, dealing with such matters as exhaust draught and ventilating apparatus, the siting and enclosure of drying stoves, the type of floor, benches and tables, the use of glass screens for keeping the face away from the work, the cleaning of implements, the storage of the luminous compounds, the disposal of disused containers. There are also Regulations with regard to washing facilities, the time allowed for washing before each meal and before the end of the day's work (10 minutes), the provision of protective clothing and paper handkerchiefs, while the use of any other type of pocket handkerchief is prohibited. Protective clothing must be removed, handkerchiefs deposited in a special receptacle, the hands and arms washed and the fingernails cleaned before a worker may partake of food or drink or smoke or use cosmetics or make use of the sanitary convenience or leave the factory, and in addition, before partaking of food or drink, smoking or using cosmetics, the face and neck must be washed. Finally, a photographic test film must be worn for one week in every period of three months. The film must be obtained from an approved laboratory. If the degree of exposure is such that the worker is receiving a dose

* Turner, F. M., 1953. *Brit. J. Radiol.* 26. 417.

exceeding one röntgen per week in the aggregate, this fact has to be noted.

In addition to the specific legislative provisions the Chief Inspector of Factories can exercise a measure of control under his general powers to secure safe working in factories so that a watchful eye can be kept on industrial developments in other directions in the use of radioactive substances and x-rays. Indeed, it is due to the admirable way in which the Medical Inspectorate of Factories, under Dr. Merewether, carry out these duties (in which they are advised by a radiological panel), that the standard of protection among industrial workers with radiations in this country is at least as high as in any in the world.

Protection Committees

An important part in the pattern of protection against radiations is played by the numerous protection committees which have been set up by scientific bodies concerned with radiations and by the various Ministries concerned with special aspects of radiations. As a matter of interest it may be noted here that the first protective recommendations in the world were issued by the British x-ray and Radium Protection Committee in 1921. These recommendations formed the basis for the first International Code of Regulations. The British Committee has now been superseded by the International Commission on Radiological Protection. This Commission published its recommendations in 1950 and a revised edition is at present in the press. The recommendations are based on a consideration of the known radiation effects on the body—the blood changes, gonadal, skin and eye effects, whole body irradiation effects, ingestion and absorption data, inhalation data—and they deal with every variety of ionising radiation, alpha, beta, and advmc neutrons from every source, natural and artificial, including substances, and x-ray generators. The recommendations cover the protection of patients, of personnel, of industrial workers and of the public. The Commission considered, "that in circumstances under which the whole body may be exposed over an indefinite period to x-radiation or gamma radiation of energy less than 3 MeV., the maximum permissible dose received by the surface of the body shall be 0.5 röntgen in any one week. This dose corresponds to 0.3 röntgen per week measured in free air." Levels are also set for beta ray exposure, neutron exposure, for air contamination for certain radioactive substances, for drinking water and so on.

In addition to the International Commission, the Medical Research Council has a protection committee as well as separate units working at Harwell and Hammersmith, and a National Radiation Protection Service has been established by the Ministry of Health and M.R.C. jointly, with Mr. Binks as Director. It need scarcely be added that every atomic research project necessarily has a stringent system of protection control, however administered.

Practical Control Problems

It has been seen that the problems in radiation control fall into three classes, first, the control of external radiation as in radiography and external radiotherapy; second, the control of work with radioactive substances, and third, the problem of the disposal of radioactive waste.

1. The External Radiation Hazard

Under this heading are included radiography, medical and industrial, whether by x-rays or gamma rays, and radiotherapy, whether by x-rays or gamma rays, applied from outside the body. I need add little to what I have already said on the protective arrangements here. Safety depends upon the construction of apparatus and the protection of the radiation rooms where operations are controlled from outside the room. The safety factors can readily be checked and radiation exposure of personnel monitored by the regular use of film badges and pocket ionisation chambers, together with periodic inspection of apparatus and protective arrangements.

I referred earlier to a gap in the protection pattern which falls under this heading, namely the use of x-rays for radiography by shop assistants for the purposes of shoe-fitting.

These operations fall outside the scope of the Factory Acts, nor is there at present any other authority with power to control them, although the Minister could make Regulations under the Radioactive Substances Act. Accordingly, the x-ray machines used are not subject to any form of inspection, either from the point of view of initial safety or the development of faults in service. There is no control of radiation exposure either to the operator or the customer, who can visit as many shops as he pleases, and try on, under "radiographic control" as many shoes as he pleases accumulating direct radiation to his feet in unlimited quantities, as well as stray radiations to the gonads and other organs.

These machines operate at something over 50 kV, with a tube current of 3–5 m.a. A recent investigation which is the subject of an A.E.R.E. report, by E. D. Dyson, showed that in the direct x-ray beam radiation intensities up to 24r/minute were measured without shoes, corresponding to about 8r/minute inside shoes. Scattered radiation measurement intensities of up to 16 m/r per hour were measured at a distance of three metres. In addition to direct radiation and scatter from the foot opening, leakage was found from the wall of the viewing boxes. There was also some leakage at joints in which the lead protection did not overlap. From the direction of the primary beam and scattered radiation significant dosage might well reach the gonads both in customers and in shop assistants operating the machines. Disorders of bone growth leading to foot deformities might well result from exposure in children and it would be difficult to trace these back to their original cause. In the case of a shop assistant a considerable dosage might be accumulated say, by the fertilised ovum during the period of gestation, and the risk to the hereditary material is also real. It is to be hoped that the investigation just referred to will result in strict control of these operations, by the making of regulations to secure at least as high a standard of safety as in medical radiography, providing for regular inspection of apparatus and the incorporation of timing devices to guard against over-irradiation. These are the minimal requirements for effective control of this type of work. In my opinion it would be better if shoe-fitting by radiography carried out by unskilled operatives were completely prohibited.

2. The Handling of Radioactive Materials

Where radioactive materials are dealt with in unsealed containers two types of hazard will arise, namely that to personnel and that of contamination of the workplace (air, benches and other surfaces, containers and so on). Where the materials are handled in sealed containers only the first hazard will exist. A general view of the sort of precautions which have to be taken is given by the Luminising Regulations which are summarised briefly above. Corresponding to the two classes of hazard the precautions fall into two classes, namely the laboratory techniques for the handling of the substances and the precautions for the protection of personnel which include monitoring, medical inspection, blood counts and the like.

3. Disposal of Radioactive Waste Products

We come now to a question which has considerable public health implications, and which I shall deal with in somewhat greater detail, namely the disposal of radioactive wastes. Although public interest has centred mainly round wastes from the atomic pile, the wastes arising from use of radioactive materials in hospitals may become even more important from the public health point of view.

The wastes from the pile include emitters of alpha, beta and gamma rays of a great variety of energies which could obviously be a great source of danger if not properly controlled. The problem of disposal includes not only these but also that of material which has become radioactive, for example, steel plates, as a result of exposure in the pile. Even though in the latter case the level of radioactivity might be insufficient to constitute a health hazard, nevertheless, the radioactive material could not be thrown on the market for general manufacturing purposes where it might find its way into, for example, a camera body or into some other article in which radioactive properties would be un-

desirable. It was partly to meet this kind of problem that dumping in disused mine shafts was proposed.

As regards the actual fission products produced in the pile, from the point of view of the present problem these fall into three groups. In the first group are the great majority of the radioactive elements with half-lives of less than one year. These can be dealt with by storing in solution in tanks for a number of years until their activity has fallen to safe limits. In the second group are only two elements with moderately long half-lives, namely Strontium⁹⁰, with a half-life of about 20 years, and Caesium¹³⁷, with a half-life of about 33 years. Caesium¹³⁷, emits a gamma radiation which is equivalent to approximately the output of a one-million volt x-ray therapy unit and with its comparatively long half-life it will undoubtedly provide an economical and much more dependable alternative to electrically produced x-ray radiations of this quality. Indeed, the whole output of Caesium¹³⁷ for the next year has already been earmarked for use in gamma ray therapy apparatus. Strontium⁹⁰ is a beta emitter and is the isotope most in use in industry for static elimination referred to above. Again it is likely that the demand will absorb at least a considerable proportion of the supply of this product. It will thus be seen that at least at present the problem of the disposal of this, the most awkward group of waste products, has been largely solved. Even so, it has been calculated that if the whole present consumption of electricity in Great Britain were generated by atomic power the total output of the two awkward products, Strontium⁹⁰ and Caesium¹³⁷, would be of the order of only a ton or two a year and such quantities could be stored for as many centuries as necessary in a relatively small space.

In the third group of radioactive waste products there are a few elements of very long half-life though of such weak activity in relation to the amounts produced that it is not considered they will produce a serious problem in disposal.

There is an aspect of the disposal of these radioactive wastes which, from the health hazard point of view, may become of great importance in the not distant future. Sir Ernest Rock Carling, in a recent address to the British Institute of Radiology, said:—

"There will be, within a generation or two, very many power installations spread about the country—and about the world—all of them producing enormous quantities of fission products. Even at the present moment, were it proven usable, there would be a possibility of setting up a commercial unit to utilise not a thousand, nor a hundred thousand, but a million curies of such products, and that sources of the million curies order may be required is certainly contemplated in industrial circles. Highly dangerous sources of radiation may soon be passing into the hands of people who, unlike those who hitherto have dealt with them, may be unaccustomed to the discipline essential for safety and indeed unaware of the power for harm in what they are handling."

Sir Ernest stressed that as soon as competition enters the field of atomic energy between firms in one country and between rival exporting countries, the economic factor will drown all considerations that could be regarded as "sentimental" or merely as humanitarian. "Every restrictive measure will be challenged and those responsible for regulations will be obliged to withstand ruthless criticism."

The commercial use of radioactive material in this country will be watched by the organisation set up jointly by the Ministry of Health and the Medical Research Council whose special purpose is the protection of the population from radiation hazards.

The radioactive wastes requiring disposal from hospitals comprise liquid and solid excreta, contaminated articles such as dressings, instruments and containers. Where accidental spills have occurred portions of woodwork, floor covering and the like may have to be disposed of. In addition, clothing and bed-clothing may become contaminated and may require storage or treatment before being set to the laundry or may even have to be destroyed.

The problems arising in the disposal of contaminated waste as well as those of the protection of personnel working

with radioactive materials have been fully discussed by H. J. Dunster recently in an admirable article.* Dunster discusses particularly in regard to hospital wastes Iodine¹³¹ and Phosphorus³², the radioactive isotopes most commonly used in hospitals. The hazards from these may be summarised as follows:—

Dunster, H. J. *Med. Ill.* (1954) 8, 11, 73.

(1) The radioactive material may find its way via the sewage into drinking water, surviving purification and dilution.

(2) Activity in sewage may be concentrated in sludges and perhaps in riverside grass but such concentrations are again diluted during the food chain to man.

(3) Sewage workers may become exposed to radiations.

(4) Garbage collectors may become exposed to radioactive waste thrown into garbage bins.

(5) Laundry workers may be exposed to risk from contaminated linen resulting in a secondary liquid effluent and possibly from contamination of breathing air.

(6) Persons handling dry linen before laundering may also be exposed to risk.

Dunster discusses permissible levels of activity in sewage and garbage. He concludes that on a very stringent standard the permissible daily discharge of activity to sewage amounts to about one millicurie per ten thousand head of population. Toilet disposal of up to 10 millicuries per flush would probably not cause overloading but checks would be necessary on radiation levels near water closets and drains. The disposal of solid waste in the garbage bins presents greater difficulties in estimation, mainly because genuine dilution is usually impossible. If handling of the contaminated items can be excluded, the beta radiation will not be of great importance in estimation and it is suggested that the radiation level at the surface of any waste bin should be kept below 10 millirads per hour, while the average radiation level from waste bins should be kept at a lower figure, perhaps one millirad per hour. This would permit of the disposal of amounts of the order of 100 microcuries of Iodine¹³¹ in a waste bin. I mention these figures for the purpose of indicating the lines on which these problems are tackled rather than with the object of laying down hard and fast levels, for which purpose I can only refer you to more competent authorities such as Dunster and his colleagues at Harwell, and Binks, the Director of the National Radiation Protection Service.

The Individual Worker

Finally, I want to say a few words about the individual worker with ionising radiations. He is a person who is employed in a dangerous occupation and is well aware of it. He must submit to a strict code of safety regulations which often imposes upon him irritating, tedious and awkward restrictions in his work. He must be prepared to submit to comparatively frequent medical examinations including blood counts. Clearly this is not an occupation for the valetudinarian, or the neurotic. I mention these facts to stress the importance of a proper assessment in the selection of workers not only of their physical health but of their temperamental suitability of the work.

As regards the general medical examination, I have already indicated that a somewhat low leucocyte count is no longer to be regarded as a bar to radiation work. What of the blood count as a guide to radiation injury? Again I have indicated that this is only an indicator at such a late stage that probably irreparable damage has already been done. Blood examinations must be carried out at regular intervals if only for the purpose of checking in time blood and other diseases which might result in an increased sensitivity to radiations. In the ultimate result, however, it is only by direct monitoring of the radiation hazard in the workplace and other danger points and by the wearing of film badges and pocket monitoring instruments that the highest standard of safety can be secured. No form of medical examination can provide a substitute for these services.

I conclude with a quotation from Longfellow,

"At first laying down, as a fact fundamental,
That nothing with God can be accidental."

INFECTIONS OF EARLY INFANCY*

By A. MELVIN RAMSAY, M.A., M.D.

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The subject of my address to you should be viewed first against the background of infectious diseases generally, and, in order that we may fully appreciate the general downward trend in mortality rates which commenced long before the antibiotic era, I show a graph of the death rates for the four commonest infectious diseases per million living under the age of 15 in quinquennial periods from 1851-1950 (Fig. 1.) We see that scarlet fever exhibited a remarkable fall in virulence even in the early years of the century whilst diphtheria, whooping cough and measles all showed a comparable, if not so dramatic, improvement. In Fig. 2 are shown the notification rates for measles, pertussis, diphtheria and scarlet fever from 1938 to 1954. The almost complete eradication of diphtheria as a result of the highly successful immunisation campaign which commenced in 1940 contrasts with the steady level of notification of cases of scarlet fever and the slight increase in whooping cough. Measles, too, in 1951 and 1953 reached its highest levels of notification since its introduction in 1940. The death rates from all four infections (Fig. 3) show uniformly satisfactory falls, so marked in the case of diphtheria that it must be mainly attributable to the success of immunisation procedures. In Fig. 4 I show the notification rates for the chief alimentary tract infections, and here the picture is not so commendable. While typhoid and paratyphoid infections remain at a low level, dysentery and food poisoning show a disturbing rate of increase; initiated doubtless by the general laxity of hygiene which obtained under wartime conditions, these infections are so entrenched that only a radical change in national habits can effect an improvement. Here too, however, the death rates from these infections show a steady decrease while the fall in mortality from gastro-enteritis (under the age of two years) since 1947 is as dramatic and as unexpected as any epidemiological trend of the century (Fig. 5).

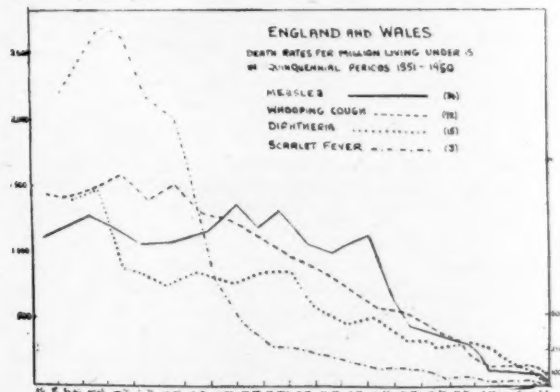


FIG. 1.—Death rates per million living under the age of 15 for the quinquennial periods from 1851 to 1950.

These revolutionary changes must in the main be attributed to the general public health measures which rank among the most creditable features of Medicine in our time. I refer particularly to the improvement in social conditions, in nutritional standards and, within the past two decades, to the greater attention paid to child welfare and successful immunisation campaigns.

I will briefly state my three main themes.

First, there is the theme indivisible from infection, namely Immunity. I am particularly concerned with the

* Address given to the Postgraduate Course Organised by the Maternity and Child Welfare Group Society of M.O.H., April, 1955.

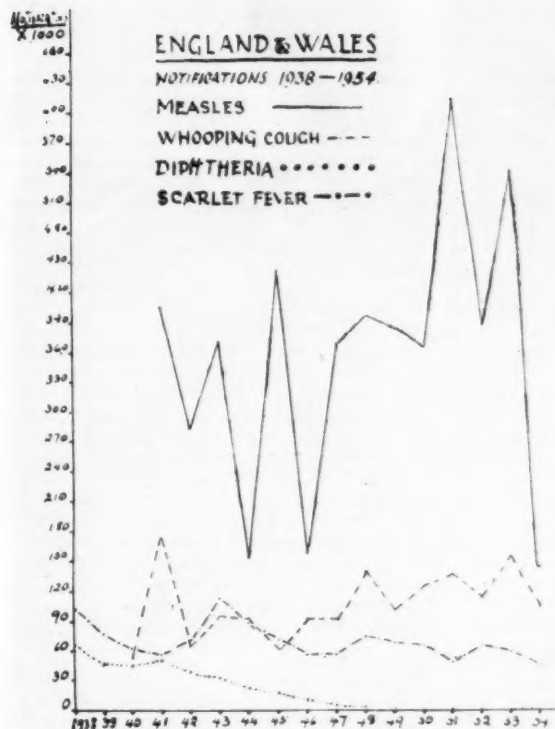


FIG. 2.—Notifications of measles, pertussis, diphtheria and scarlet fever, 1938-54.

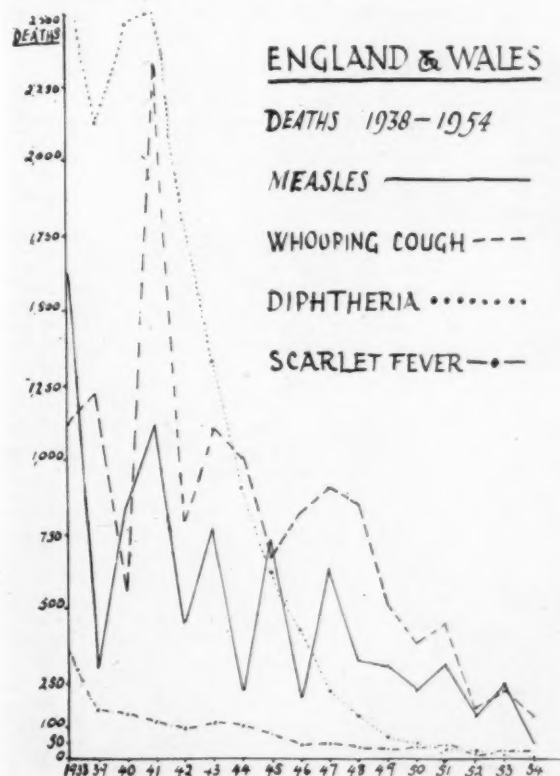


FIG. 3.—Deaths from measles, pertussis, diphtheria and scarlet fever, 1938-54.

period elapsing between the waning of the passively acquired maternal immunity and the establishment of a naturally acquired active immunity. The creation of sound artificial immunities in infancy has become an important part of your work, but it is not easy to give a pronouncement as to the optimum time for the administration of prophylactic agents. The emphasis is now on the need for earlier establishment of such immunities. Certainly, if pertussis immunisation is to play its full part in preventing or modifying the most dreaded infection of infancy, immunisation must be carried out before the 6th month of life if not before the 3rd. The practice of immunising infants against pertussis after the 6th month is now obsolete.

My second theme is that of diagnosis and particularly its difficulties in the younger age groups. In a general way, the younger the child the less clear cut is the clinical pattern of an infection. Those who expect unmistakable neck rigidity and a positive Kernig sign in an infant with purulent meningitis will not contribute to an effective reduction in the mortality rate whatever chemotherapeutic agent they may use. Within the past week I have encountered a case of purulent meningitis in a child who presented with diarrhoea and vomiting and no neck rigidity when first seen. A second child developed neck rigidity and drowsiness with high fever 12 days after uneventful resolution of uncomplicated measles. The fairly obvious diagnosis of encephalitis was not upheld either by lumbar puncture or by the subsequent clinical course. The finding of 30,000 white blood cells per c.mm. in the peripheral blood suggested pneumonia. A careful examination of the chest revealed

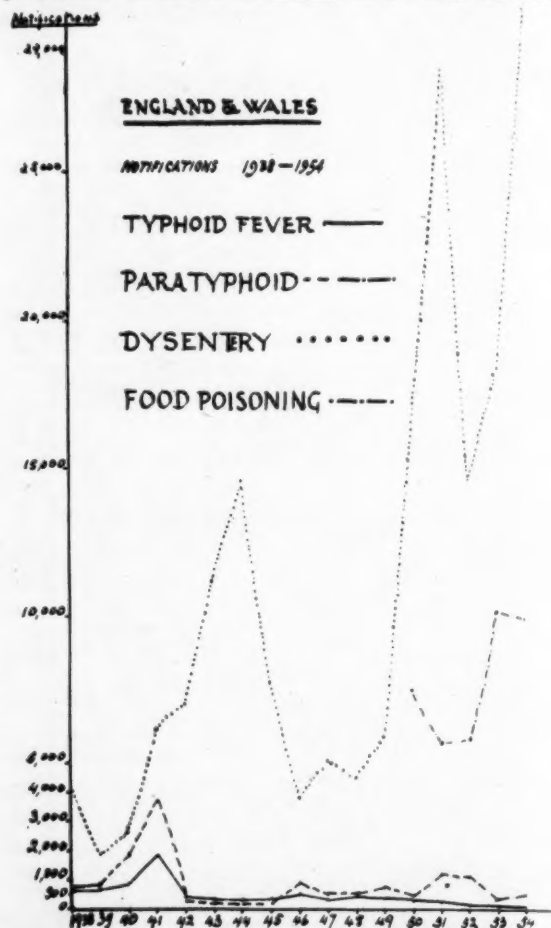


FIG. 4.—Notifications of typhoid, paratyphoid, dysentery and food poisoning, 1938-54.

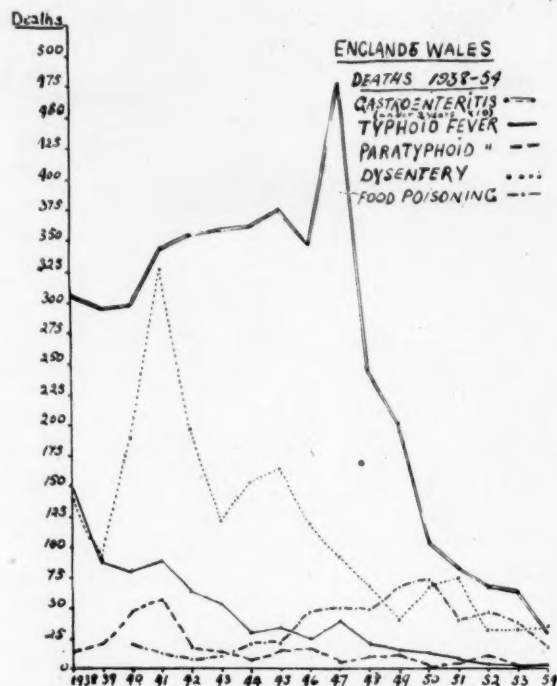


FIG. 5.—Deaths from typhoid, paratyphoid, dysentery, food poisoning and gastro-enteritis, 1938-54.

no abnormal signs. Radiological examination showed consolidation of the lateral segment of the upper lobe. A radiologist colleague assures me that it is impossible to detect the ordinary physical signs of pneumonia on clinical examination in these cases and that the most exhaustive search of the axilla will reveal nothing. The infant then does not necessarily conform to the classical pattern in infectious disease and I am satisfied that, if we are to avoid catastrophes in early infancy, we must be ready to investigate any departure from normal feeding and behaviour. Listlessness, lethargy, refusal of feeds, absence of the usual cry may be the sole presenting signs of a rapidly spreading infection.

The third theme inseparable from the subject of infection is cross-infection both in hospital and in the home and on this score at least there is no possible ground for complacency.

Local Sepsis

The first subject with which I will deal is that of local sepsis; in these days when a-sepsis is practised as a fundamental tenet, sepsis affecting the umbilicus, eyes, ears and skin, particularly whitlows, is undoubtedly less common but it is still not fully recognised how dangerous local sepsis can be in the infant or how frequently staphylococcal infection is responsible for general spread to the viscera with fatal results in the neonatal period. Forfar *et al.* (1953) showed that the staphylococcus is responsible for the large majority of septic lesions of the skin and conjunctivae in neonates and they and other observers now place the infection rate with staphylococci among infants in large maternity units at about 10% to 15%. Moreover, they found that 76.6% of these organisms were penicillin resistant and that some degree of resistance had developed to the various other antibiotics as well. In a recent paper Forfar and his colleagues (1955) describe the results of treatment with erythromycin, alone in one series, and combined with streptomycin in another. During the trial they found that the increased use of streptomycin increased the proportion of streptomycin resistant organisms among the staphylococci isolated from nasal carriers among the staff of the unit.

Indeed, it would seem that the treatment of both sufferers and carriers with antibiotics may be creating more problems than it can solve. Recognition of minor infections of the conjunctivae, skin and umbilicus presents little difficulty and, treated early, most of them can be readily cleared up by local therapy. It is only when they remain unobserved or neglected that danger arises. Two cases described by Professor Moncrieff in his admirable Charles West lecture (1953) illustrate both the difficulty of diagnosis and the danger of neglect of a spreading staphylococcal infection.

Case 1.—A baby girl was admitted as a case of haemorrhagic disease of the newborn. The baby was not seriously ill when admitted on the 5th day of life and the diagnosis of haemorrhagic disease was accepted. Vitamin K was administered. Four days after admission she had a cyanotic attack but no abnormal physical signs were found in the chest. The child was feeding well and gaining weight and there was no further bleeding. At 10 days the child was vaguely not doing well. Puffiness of the face and distension of the abdomen developed. The baby died next day. *Post mortem* showed a right sided empyema and multiple lung abscesses suggestive of an inhalational septic pneumonia. Coagulase positive staphylococci were isolated from the pus. Professor Moncrieff describes this as a missed diagnosis despite "all the resources of a modern hospital and the expert supervision of 'high-priced specialists.'"

Case 2.—A baby was admitted at the age of five weeks for neonatal sepsis. This had begun with a sty in the right eye, a septic spot on the right cheek and a septic thumb in a Nursing Home where he was born. At the age of four weeks an infected area had appeared on the right leg and the day before admission the right ear had begun to discharge. Despite the use of every modern drug he was unable to overcome his infection and at *post mortem* the bony parts of the right ear were found to be almost completely destroyed. Had he received prompt and vigorous treatment for the local sepsis while in the Nursing Home there would have been no general dissemination of the organisms and his life would not have been endangered.

In a world of human fallibility it is perhaps too much to say that sepsis neonatorum should never occur but, when it does, prompt local therapy with gentian violet 1% in the case of skin lesions and sulphacetamide, aureomycin or chloramphenicol drops in the case of eye infections (Forfar (1955) recommends chloramphenicol for this purpose as it has been shown that complete resistance to it seldom develops and cross-resistance between it and other antibiotics is seldom observed) will usually eliminate the infection and the need for parenteral antibiotic therapy be these avoided. If antibiotics are to continue to have any value in the treatment of staphylococcal infections it is certain they must be used as sparingly as possible. Since the emphasis must always be on prophylaxis, the encouragement of breast-feeding and the maintenance of high standards of hygiene among the nursing staff form the basis of all essential prophylactic measures. Watkins (1951) showed a reduction of the neonatal death rate from 43 per 1,000 to 24 per 1,000 in a Cardiff Hospital between 1946 and 1950 as a result of the institution of stricter methods of avoiding cross-infection and the encouragement of breast-feeding. Blaikley (1951) at Guy's Hospital stressed the importance of excluding from the wards all staff and patients who were symptomless carriers of staphylococci. In addition, the washing of babies was kept to a minimum, a sterile towel was used for each baby, each day's supply of dusting powder and olive oil was sterilised and, fundamental to all barrier nursing, thorough washing of hands before and after handling the baby was strictly enforced. Visiting was kept to a minimum; fathers alone were allowed to visit and they had to wear masks. Whereas previously there had been several outbreaks of pemphigus necessitating the closing of wards, in the subsequent eight years there were no epidemics and very little sporadic infection either of mothers or babies. Probably the most difficult matter on which to express an opinion is that of the use of antibiotics as prophylactic agents. I have already stressed my strong disinclination against anything but the most sparing use of these drugs and to use them prophylactically is tantamount to an admission that we cannot trust our methods of barrier nursing to ensure adequate protection for the infant. I myself am

not responsible for the supervision of a neonatal unit. I am indebted therefore to Dr. N. R. Butler (personal communication) for recommendations regarding prophylactic antibiotic treatment of the newborn. An analysis of neonatal deaths in progress at University College Hospital (Bound, J. P., Butler, N. R., Spector, W. G., in press) confirms that one or more of the following conditions preceded the vast majority of cases of severe pulmonary infection in the newborn:—

- (1) Early rupture of membranes, over 24 hours before the onset of labour.
- (2) Acute maternal infection, or pyrexia above 100° F., within one week preceding, or at any time during, labour.
- (3) Foetal distress.
- (4) Delay in the establishment of normal respiration after birth.

It is therefore recommended that a prophylactic course of antibiotics for the first five days of life be given following any of the above complications. It is also advised routinely for all premature infants, below four pounds birth weight, where susceptibility to infection is greatest and diagnosis most difficult. Dr. Butler recommends a similar prophylactic course of antibiotic for cases of unexplained anaemia, vomiting or jaundice in the neo-natal period until, or unless, infection has been excluded. The antibiotics of choice are Penicillin 100,000 units b.d. and Streptomycin 10 mgm. per lb. b.d. intramuscularly or, if oral feeding has commenced, Terramycin 20 mgm. per lb. per day given at four hourly intervals.

Respiratory Infections

First, the common cold. No adult has immunity to the common cold so no passive maternal immunity can be conferred on the infant. Yet the common cold is seldom recognised as an important infection of infancy mainly because the pattern of infection associated with its development in the adult is absent. Indeed, it may be so varied that diagnosis must rest on circumstantial evidence. Once again I cannot do better than quote to you what Professor Moncrieff has to say on the subject. He says:

"Consider the clinical features of a small baby with a cold. Lying horizontally in bed, he seldom sneezes and such excess secretion as is present from the nasal mucous membranes passes down his throat. Obstruction of the nose leads to great difficulty over feeding and the baby is weaned because he will not take the breast. . . . By now he may have begun to vomit or to have green stools as a result of his parenteral infection. . . . Alternatively, infection spreads down the respiratory tract and involves the finer bronchi and alveoli." Now the insidious staphylococcus comes into action to cause a rapidly spreading pneumonia with a fatal result without any suspicion of the respiratory tract as the original source of infection. "Again and again it is possible to track the infection back to the baby's contact with an adult who has a nasal infection. The mother herself may have a chronic sinus infection or the trouble may have come from one of the nursing staff. Things are perhaps a little better than they were because the use of masks is more widespread but so long as the cold is largely unrecognised in the baby for what it is the menace will continue."

Foremost among respiratory infections is *whooping cough*. We have seen that the mortality figures are, as with measles, very satisfactory. The deaths in 1954, namely 139, are the lowest on record (Fig. 3). But, on the other hand, we have to realise that 62% of these deaths were under the age of six months, and, since pertussis pneumonia frequently suppresses the development of the paroxysmal stage and renders diagnosis difficult, the number of pertussis deaths in the first six months of life is probably considerably more than the figures show. Clearly, there are two ways of attacking the problem of pertussis, (1) by prophylactic vaccines and (2) by improved methods of treatment. Now various points in regard to pertussis prophylaxis are at present undecided and I think it would be helpful to review the whole subject of immunisation in infancy particularly in regard to its timing.

I am again indebted to Dr. N. R. Butler, whose work at University College Hospital and in conjunction with the Wellcome Research team of Miss Mollie Barr and Mr.

A. T. Glenny (1954) contributed valuable information on the immunisation of young babies against diphtheria while in another communication (Butler 1954) he showed the place of combined prophylaxis against diphtheria and pertussis in the first three months of life.

The various points which arise in this connection may be summarised as follows :—

(1) Good pertussis vaccines can be prepared (M.R.C. Trial 1951).

(2) Pertussis vaccine should be given, if possible, in the first six months of life in order to reduce the early mortality, although the prevention of chest morbidity *e.g.*, bronchiectasis, is equally important.

(3) The use of combined diphtheria-pertussis prophylactics has much to recommend it. The present generation of mothers are aware of the dangers of whooping cough and are anxious to have their children immunised. On the other hand the scourge of diphtheria is little more than a name to them and if the immunisation is advocated separately there is every possibility they will not bring their children back for diphtheria immunisation.

(4) Strict attention to the balance of the components will take care of any objection that the stimulus may not operate equally in the production of antibody to both antigens (or, if diphtheria pertussis tetanus prophylactic is used, to all three antigens). In fact, enhancement of diphtheria fluid toxoid occurs when combined with pertussis vaccine, lessening the need for mineral carrier. In any event, mineral adsorbed prophylactics should be discontinued in view of the danger of precipitating poliomyelitis when this disease is prevalent. Butler has shown that fluid combined prophylactics given deeply subcutaneously are safe and are attended by considerably fewer local reactions and practically no abscess formation.

(5) In regard to the optimum time for immunisation a most important point is that pertussis protection is required very early and at a time when interference with diphtheria antibody production may result from inherited maternal antitoxin. But for this difficulty early immunisation with combined prophylactics would be a simple administrative matter. The majority of local authorities have been quick to practice progressive methods of taking advantage of the rapid fall in inherited maternal antitoxin by the third month of life and have commenced combined diphtheria-pertussis immunisation at three to four months. For those who wish to give earlier whooping cough protection, suspended pertussis vaccine separately at one two and three months in 1 cc. dosage, gives good protection with a low reaction rate (Butler, N. R., Ungar, J. 1955, in press) in which case separate diphtheria or diphtheria-tetanus immunisation may be given toward the end of the first year at a time when the need arises and the antigenic response is at its highest. It should be noted that the Ministry issue only diphtheria prophylactics.

An alternative experimental scheme tried at University College Hospital and reported in a leading article in the *Lancet* (1954) with combined triple immunisation at six, 12 and 18 weeks does not give effective basal immunity against diphtheria in all cases and thus renders a boost dose at one year essential.

For practical purposes therefore Dr. Butler recommends the following scheme :—

(1) Primary vaccination at three months with emphasis on the need for two repeats in the event of failure to "take".

(2) Combined diphtheria-pertussis-tetanus immunisation at four, five and six months using each time 1 c.c. of a well balanced fluid prophylactic given *deeply subcutaneously*. A boost dose against diphtheria and tetanus can be given between one and two years and again at school entry at five years. The giving of a pertussis boost at these times is optional as the maximum mortality from the disease has passed and the vaccine is liable at these ages to produce slightly more in the way of reactions; it is probably better therefore to reserve this for administration after exposure to the disease.

The Treatment of Whooping Cough

Early diagnosis is all important but is not always easy on account of the slow development of the full clinical picture particularly in the small infant in whom the disease may be present as pneumonia or with paroxysmal sneezing or apnoeic attacks. We have therefore encouraged the Medical Officer in charge of local Nurseries to make use of our laboratory service by referring suspected cases for white blood cell counts and post nasal swabs. Even if the white blood cell count is not conclusive when first performed the repeat count may show a definite trend toward the characteristic picture of leucocytosis with absolute lymphocytosis.

There can be no doubt that the fall in the death rate is in large part attributable to improved treatment of the complications of pertussis, namely, bronchopneumonia with resultant lung collapse, convulsions and gastro-enteritis. Chloramphenicol has been shown to have little value unless used in the first week of the disease (M.R.C. Trial 1953a.) and combined sulphonamide and penicillin still ranks as the best treatment of the bronchopneumonia of whooping cough as is well exemplified in the case shown in Fig. 6. The condition of a nine month old child with extensive bronchopneumonia complicating pertussis was rapidly worsening while on treatment with chloramphenicol. When treatment with combined sulphonamide and penicillin was substituted there was immediate response and resolution was uneventful. We are in no doubt that these drugs have made a marked contribution to the recovery of many infants who would previously have died. But their recovery places upon us the responsibility of a close follow-up by serial x-rays until the accompanying collapse areas have re-expanded. Expert physiotherapy is invaluable in bringing this about and so preventing the dread sequel of bronchiectasis. Convulsions, if allowed to proceed, may prove fatal and hospital treatment is essential in all cases. Oxygen therapy with large doses of barbiturate (sodium amylal is recommended) is the basis of successful treatment. The explanation of pertussis convulsions is still obscure as the brain shows only capillary haemorrhages at autopsy. Oxygen lack is certainly one factor in this type; in the "eclamptic" type the prognosis is always most grave.

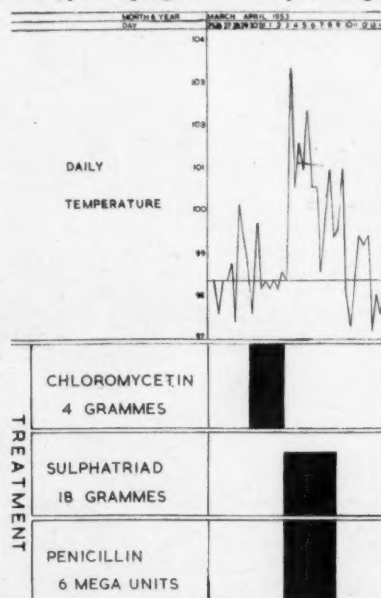


FIG. 6.—Whooping cough broncho pneumonia in child aged nine months, treated unsuccessfully with chloramphenicol but responding immediately to combined sulphonamide and penicillin.

Infantile Gastro-Enteritis

A child with diarrhoea and vomiting may be suffering from: (a) dietetic errors unassociated with infection; (b) specific infection of the alimentary tract with organisms of the *Salmonella* or *Shigella* groups or with pathogenic types of *E. coli* (some may have infection with toxin producing organisms such as the staphylococcus or *Cl. welchii* in which case the pathogen may not be isolated on ordinary culture); (c) a parenteral infection in which the primary focus is in the ear, lung, kidney or central nervous system. Such a child should be isolated in a special unit until the diagnosis is clear; he should not be admitted directly into a general paediatric ward. It is now fully accepted that pathogenic forms of *E. coli* are responsible for infantile gastro-enteritis which is an infection associated with poor social conditions, overcrowding (the County Borough death rate in 1947 was 8.7 per 100 live births; in rural districts it was 3.1 per 100) and bottle feeding.

Fortunately, as we have already seen, there has been a remarkable fall in the death rate from gastro-enteritis which commenced in London in 1945 and in England and Wales as a whole in 1947 (Fig. 5). Dr. Ian Taylor (1954) discussing possible explanations, suggested that while improved social conditions, better nutrition, priority milk schemes and better medical care all played a part in bringing this about most stress should be laid on two factors, namely:—

(a) Improved hospital treatment; intravenous fluid therapy for the dehydrated infant was only generally practised after 1943 in London hospitals while the advent of penicillin in 1945 was rapidly effective in controlling secondary infection in lung and ear, complications which had hitherto so frequently caused a fatal issue.

(b) The increasing use of dried milks, since the danger of infection from a feed made from dried milk is obviously less than one made from liquid milk which may have been in store for some hours before use. The fact that the prevalent mild form of dysentery spreads easily in nurseries suggests that the rarity of gastro-enteritis epidemics is due to reduced prevalence of the causative organisms rather than to improvements in hygiene.

Despite the satisfactory improvement in mortality figures the studies made by Rogers (1951) on mode of transmission of infection in units dealing with these cases shows that much higher standards of barrier nursing are essential. Thus, Rogers showed that a cubicle became widely contaminated in 18 hours and type strains of *E. coli* remained viable in the dust for at least 27 days. Communal articles used throughout the ward were blamed for inter-cubicle spread in a divided ward. A more recent experience recounted by Jameson, Mann & Rothfield (1954) underlines the grave danger consequent upon the introduction of pathogenic strains of *E. coli* into a paediatric ward. In a very instructive paper they tell how a child aged eight months was admitted to a general paediatric ward for one day but was immediately removed when it was realised that he had gastro-enteritis. He was subsequently shown to be excreting *E. coli* of type strain 055. An outbreak followed which involved 127 children and lasted 15 months; there were 13 deaths. Closure and partial emptying of the ward during this period proved ineffective owing to the retention of symptomless excretors in the ward population. In the end complete closure for four weeks was required. After reopening, a more rigorous routine of preventive measures was followed by 16 months freedom from coliform gastro-enteritis. My immediate criticism is that the child should never have been admitted directly into a general paediatric ward in the first place. I agree completely with their conclusion that an efficient milk kitchen is an essential in such a unit. Efficient operation of a milk kitchen requires:—

(a) That the nurse responsible for the preparation of the feeds for 24 hours should not enter the ward until her duties in the milk room are completed for the day. Some units demand a surgical technique with the use of rubber gloves. We prefer a conventional ward technique using washed ungloved hands but with full provision for contamination.

(b) That the feeds, having been assembled and rubber covers applied over the teats, should be autoclaved for 30 seconds at 10 lb. pressure. This raises the temperature of the milk to 176° F. but does not caramelise it.

(c) That while still hot the feeds be transferred to a refrigerator where they remain until just before use.

(d) That the bottles be then re-heated to blood heat.

(e) That the rubber cover over the teat be only removed just before the bottle is given to the baby.

The basic principle in prevention reverts once more to the age-old story of breast versus artificial feeding. Wolfish (1953) found that in less than 1% of cases of gastro-enteritis was the infant entirely breast-fed when the symptoms first developed. The Oxford survey of the same year by Stewart & Westropp (1955) confirmed the necessity for full breast-feeding in protection. Ross *et al.* (1953) in Glasgow showed that faeces of breast-fed infants have a predominantly lactobacillary flora and a pH of 5.0 to 5.5 whereas the faeces from artificially fed infants have a pH of 7.0 to 9.0. They also further showed that a single supplementary feed leads to loss of the lactobacillary element and a pH of the faeces which no dietary change will reverse. Jameson *et al.* (1954) thought that the high percentage of 055 isolations could be attributed to the ability of *E. coli* to colonise the gut of the artificially fed infant.

Antibiotic Control

In the M.R.C. trial (*Lancet* 1953 b) sulphadiazine proved better than aureomycin and chloramphenicol but generalisation is dangerous. We ourselves have found combined streptomycin and terramycin by mouth effective in sterilising the gut but organisms are very likely to reappear after four days. A more recent trial with Kaomycin (containing Neomycin sulphate) is more promising but a final conclusion as to its effectiveness cannot yet be reached. Sensitivity tests on the organism should be carried out as a routine so that the proper alternative may be selected if the routine treatment fails. The need for such prevention in a well run hospital reflects sadly on our inability to halt the spread of this form of infection which is not stopped by the good barrier nursing which prevents all other cross infection.

Infections of the Central Nervous System

No more difficult diagnostic problem presents itself than that of acute infection of the central nervous system in the infant. Haworth (1953) pointed out that, while the prognosis has improved as a result of antibiotic therapy, the fatality rate is still high and particularly under the age of one year. The Department of Health for Scotland in 1944 gave the death rate for children under one year from meningococcal meningitis as 28.3%. In 1952 Dr. S. Banks (*Lancet* 1952) confirmed that it was still little better.

Of 50 cases studied by Haworth and his colleagues 26% showed none of the classical signs. Alexander (1947) states that stiffness of the neck and a positive Kernig sign are both highly unreliable in the first few months of life and seldom appear before the advanced stage of meningitis. To shoulder junior officers with the responsibility of diagnosis in such cases is grossly unfair; they should be routinely seen by their senior colleagues. Otherwise, the baby with meningitis who exhibits drowsiness alternating with irritability and a high-pitched cry will continue to be diagnosed too late. Lumbar puncture should be done on any child who is (a) drowsy or irritable without obvious cause, (b) who is more ill than the physical signs would account for, (c) who does not respond to treatment for bronchopneumonia or gastro-enteritis.

Summary of Main Principles

(1) Continue the excellent work that is being done in improving nutrition and standards of physical health in the infant and child.

(2) Maintain public interest in immunisation procedures and make every effort to establish sound and, if possible,

uniform schemes of immunisation in the next two years accepting the indications for earlier immunisation.

(3) Promote schemes for education of youth while still at school (the most impressionable age) in the simple principles of hygiene as a social duty. Only by striking at the very root of the problem can we hope to reduce the incidence of alimentary infections like dysentery and food poisoning.

(4) Insist on the highest possible standards of barrier nursing in paediatric units treating infants with possible alimentary tract infections.

(5) Greater emphasis should be laid on the training of medical students in the need for regarding any departure from normal behaviour in the infant as a possible first sign of serious infection. The senior paediatrician of a unit should always be readily available to deal with this most crucial of all diagnostic problems.

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THE PROMOTION OF MENTAL HEALTH IN YOUNG CHILDREN*

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The child psychiatrist welcomes evidence of a further concern by workers in public health for the mental health of their patients (ref : 1, 2, 3) and particularly the preliminary steps that are being taken towards this object in some Maternity and Child Welfare Clinics ; these are key places for observing and perhaps influencing the mental health of the developing young child. However, as such steps are taken, it is necessary to elucidate how much can be done in this setting ; this is best worked out by discussion between the psychiatrist and those who work in the welfare clinic ; both have much to contribute towards the development of what can be valuable clinical work in this preventive field by the health workers. A lecture such as this can only point out some of the way ; it cannot be a short cut to territory that is still relatively unexplored. Caution is necessary, as the promotion of mental health is a complex problem and the roads to it are not yet clearly defined throughout their length.

To concentrate in this way on the maternity and child welfare clinic catches the child and parents during early formative years, when future personality patterns are being laid down in the former. It is believed that the early years

are most important and that the influences of parents and others are very significant then for promoting or, on the other hand, undermining the child's early mental adjustment and later stability. Apart from relieving any immediate distress that can be found, it is hoped that anything that can be done at this time to promote mental adjustment in the child may help towards future stability. At the same time, when judging how far mental ill health can be prevented in this setting, other factors, such as the innate constitution of the child, subsequent environmental experiences and physical ill health have to be taken into account. There is still need for research into these matters. Again, while there are fairly firm grounds for the belief that adult neuroticism and aberrations of personality, which together form the bulk of mental ill health, may have their origins in the experiences of early childhood, the aetiology of the major psychoses is still largely obscure. The same applies to mental defect.

The important work for the prevention of mental ill health that lies in the social, economic and educational spheres is not of immediate concern here. It is the influences, often subtle, that affect the mental life of the young child and which arise in the intimate inter-relationships of the child with the mother and others around him, that are the focus of attention. What may be the effect, for example, of lack of affection by the mother, who may not have wanted the child ? How may lack of confidence by the mother, with anxieties and fears, influence her child ? And what of marital disharmony or the presence of interfering relatives ? Again, breast feeding and toilet training have implications for emotional as well as physical well being and so does the handling by the parents of the toddler stage. These examples can be multiplied and, while in the majority of families early development is healthy and undisturbed, such issues can be important and may lead to difficulties for the child ; they are sometimes not easily spotted without discernment by an onlooker.

These and many other matters concerning the young child can be discussed at length ; the staff of the welfare clinic is particularly well placed to observe them, to notice any difficulties in their patients at an early stage and to exert their influence to try and alleviate them. It is necessary, however, to consider how effective such influences can be and how health visitors, for instance, can increase their technical skills in this direction. These workers have a fund of clinical experience and are well able to teach parents what are the norms of development. They should also be able to relieve much needless anxiety by sympathetic handling and education. On the other hand, if a mother is emotionally disturbed she may not be able to accept or benefit from advice ; it is thus necessary to appreciate the significance of such disturbance in mother and child, to judge perhaps if it can be dealt with by the worker concerned or if psychiatric help may be required. This needs an active appraisal of the total problem that the family presents and the ability to be aware of what may lie behind some overt symptom complex in child or parents. Workers require to have insight into these things ; many undoubtedly possess this gift, so that it should not be too difficult for them to add on technical skills towards appraising and dealing with the emotional difficulties of at least some of their patients. It must be remembered, however, that not all workers can be at ease when working in this field, even if highly skilled in other directions. They need to be "cut-out" for this approach as well as interested in these sort of clinical problems.

The report of the L.C.C. Public Health Department and the Tavistock Clinic Study Group (3) has already pointed out a way towards approaching this goal for health workers and the first step to it is a closer association in a neighbourhood between the child health service and the psychiatric service for children. This has already been accomplished in a few instances, where for example the psychiatrist from the psychiatric clinic comes to the local maternity and child welfare clinic to help by consultation in the solution of any psychiatric problems that arise there. This has been of

* Synopsis of a lecture given to the postgraduate course organised by the Maternity and Child Welfare Group, Society of M.O.H., London, April 22nd, 1955.

benefit to both sets of workers as well as to the patients concerned. Once such an association has come about with mutual understanding of each others' functions in regard to young children, a voluntary discussion group can be formed on the psychiatric problems that arise amongst the health workers' clientele. Such a voluntary group of health workers with the psychiatrist can discuss cases that have psychiatric symptoms, but which the health workers wish themselves to handle. For the success of such a venture, it would seem of importance that the discussion is on patients that are of immediate concern to the workers and that while the psychiatrist may contribute towards the finding of a solution, the health workers have their own important professional contribution to give and above all clinical responsibility. Should the psychiatrist consider that direct specialist psychiatric help is required for some patient he will be likely to say so and if the workers agree, this can be brought about. Such a discussion may roam far and wide over the mental health field; its underlying object is to help the health workers to feel their way towards a deeper insight into their patients' emotional problems and so how they may be of further help to them. The psychiatrist will incidentally learn much of clinical value from the professional experience and point of view of the health workers.

Such an experimental group has been under way for a short time in a maternity and child welfare clinic in L.C.C. Area 9, where the psychiatrist meets with the medical officer and those health visitors who wish to partake, for regular discussions on the handling of patients who present with problems pointing to underlying psychiatric difficulties, and any wider issues in the mental health field that arise from them. These group discussions have an educational purpose and are separate from a psychiatric consultative service that takes place in this clinic for more immediate or serious psychiatric problems. It is too early to draw conclusions from this experiment, but it is clear that the principle of voluntary participation is important; some health visitors are keenly interested whereas others prefer not to come to it. The time factor is also important in a busy clinic and it means some self-sacrifice by the participants. Any discussion has to go on at a pace that allows the material presented to be "digested and absorbed." The pace is slow; anxieties can arise and need to be handled, as the material discussed may well touch the feelings and attitudes of the workers themselves. Again, there is the danger at first of an over-expectation of results from a new clinical approach, with consequent disillusionment and frustration when these may not come about. It is characteristic that a case may be presented for discussion that at first appears to the health visitor to point to some difficulty in the mother and child which should be readily solved, but in which further examination shows up problems that have no quick or easy solution even if the presenting symptoms settle down. Whether or not the health visitor should leave matters alone is a recurring subject of discussion, and the follow-up of those patients who have some seemingly temporary emotional upset would be a worth-while study. Will further difficulties arise in due course or will the child's development proceed with smoothness? Much would seem to depend on the stability or otherwise of the parents.

The group described here is at a preliminary stage; there is at least one other such group elsewhere with longer experience. It still needs to be worked out how far the health visitors can learn to appreciate the aetiological factors at work behind some presenting symptom complex of psychiatric significance; how with fuller understanding they can best handle the problem and then how effective their work may be towards preventing further disturbance in the family concerned. These questions cannot be answered at present, but brief examples of three case histories presented by health visitors for discussion in turn in the group illustrate the sort of clinical problems they have met in their work; their concept of their nature at present and how far they felt they could deal with them. Such illustrations, however, do not show the discussion that occurred in

the group, the changes in opinion that sometimes ensued, nor the quicker insight into a problem that was in due course sometimes gained.

Case I

A girl, aged three and a half years, refused to stay in bed unless her mother came up to spend the evening with her and then went to bed with her. This had followed a family holiday two months before when all had had to sleep together. She had shown a little jealousy of her young sister, aged 18 months, and was rather over-attached to her mother. She had a temper and liked her own way. She also bit her nails and had been a thumb sucker. Her birth had been normal and she was breast fed for three months, weaned, passed the milestones and developed normally. She was physically healthy. The home background appeared to be satisfactory to the health visitor and the parents were said to get on with each other. However, the father had been away in the Forces until the birth of the younger child. The two children normally shared a room upstairs and the parents one downstairs.

Discussion ranged round the practical steps that should be taken to deal with this family situation, the psychiatrist taking a passive role in the discussion. Meanwhile, the situation somewhat settled down in that the child remained content at night if the father slept upstairs with the children and the mother on her own downstairs. On the whole, the group considered that this partial solution was unsatisfactory but that they should not probe further at present into the personal life of this family. The meaning of the child's symptoms and the possible implications for the mental health of the family were not raised at this stage of the group proceedings.

Case II

A mother in her 40s asked the health visitor for help as both her children were in difficulties. This woman went out to work each day as a guide for mentally defective children. Her husband did night work as a compositor and managed the children by day. They had lost the first child from lymphosarcoma, at the age of six years. The next child, now aged eight years, had to be rather neglected at the time and began to masturbate. This had settled down but was now again a problem at school. Stillborn twins came next and then a little girl aged two years who was ruling the household. She had constant temper tantrums, would not be dressed and so on.

The health visitors had no difficulty in realising that this mother was quite severely neurotically disturbed and that the children were reacting to this. It had been decided to refer the whole problem for specialist psychiatric help, as it seemed to them to be a problem beyond their abilities to handle it.

Case III

A boy, aged one year, presented with such an acute feeding problem that the health visitor had to go in and feed him. The mother had had a number of difficulties and had conceived with difficulty. Pregnancy was accompanied by much vomiting and was over-calculated by two months. Breast feeding, however, caused no difficulties and the child developed normally. At nine months, while teething, he had an upper respiratory infection with some constitutional upset. He was kept on glucose water for two days and it was then the feeding difficulties began. He refused to feed from the mother or father and only drank water. This had developed into an acute situation where only a neighbour could get him to take food or if mother left tit bits about for him. With the help of the health visitor the acute situation gradually settled down although he remained fussy over what he would take.

The discussion ranged round how best to get the child and mother over the immediate feeding problem; should it be tackled actively from the psychiatric angle and if so by the health visitor in the welfare clinic setting, or by a psychiatrist? The last was not considered practical in the particular circumstances. How emotionally disturbed was this mother, and what could be done about it? Was the child likely to grow up into a stable child, or would there be future difficulties over feeding or in other directions? If it was necessary to try and tackle this woman's difficulties, how should it best be done, or would it be better just to keep an eye on the situation? These questions mostly remained unanswered, although the discussion continued.

This account of the discussion held on these cases is necessarily very brief, but Case III shows an awakening interest and more awareness than in Case I. It is not easy for such a group of health visitors to settle down to a series

of discussions of this kind with a psychiatrist, to express their opinions freely and perhaps to disagree with colleagues. It is necessary for the group to continue to feel its way, undisturbed by onlookers, and above all to discuss as far as they can themselves the meaning of the behaviour that their patients show. This cannot be dictated to them by the psychiatrist, although he can stimulate their thinking.

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BOOK REVIEWS

The Prevention of Cruelty to Children. By LESLIE G. HOUSDEN. (Pp. 400. Price 28s. net.) London: Jonathan Cape, 1955.

During recent years much has been written and spoken in the cause of unhappy children, but it is apparent from Dr. Housden's book that as yet preventive action has scarcely reached beyond the fringe of the tragic happenings which he describes.

There is, in this country, a vast repair shop of many departments, amply equipped to deal with the neglected and deprived, the maladjusted and delinquent child. No one denies the need for this, but the cost to the country is enormous. In 1952 there were over 64,000 children in care and over 15,000 in remand homes and approved schools. The cost of their maintenance was £14,500,000, a year and this is only a small part of what the people of this country are paying for the cruelly-used children of neglectful and apathetic parents.

In presenting his case for a vigorous campaign for the prevention of the underlying causes of cruelty to children, Dr. Housden has made an exhaustive study of the subject (there is a list of over 400 text-references) and he defines cruelty "in a broad sense to include neglect and mental cruelty."

In his search for the reasons for cruelty to children, the author has looked to the past for evidence of the tradition of squalor and child neglect which has been handed down through the generations. Part I of this book is grimly descriptive of the unhappy lot of many thousands of children in the 19th century, who lived in overcrowded misery, starved, beaten and neglected. It is a veritable chamber of horrors from the days of child labour and exploitation, desertion and starvation, when baby farming and fostering were sure means of getting rid of unwanted children. It was growing awareness of such conditions that roused public conscience in the latter part of the last century and led to legislation and the formation of voluntary societies for the protection of children. Foremost among the latter was the National Society for the Prevention of Cruelty to Children. It is from his many years of association with this Society that Dr. Housden has drawn much of his information and he quotes widely from reports of their inspectors.

The picture which is drawn of living conditions in the slums of those days, the overcrowded stinking rooms, filthy bedding and complete lack of hygiene and decency among the inhabitants, is indeed a ghastly one. Any feeling of complacency that such places do not exist to-day will be shattered by reading Part II of the book, entitled "The Present." Here, the author describes his personal experience, backed by N.S.P.C.C. Inspectors' reports, of comparable conditions of overcrowding, squalor and appalling lack of sanitation which can be found in Great Britain to-day. This will be corroborated by any social worker who investigates neglected and unwanted children. The picture of the present is brightened by the action of modern legislation and the multitude of people, official and voluntary, who are working to help the cruelly used child.

However, as Dr. Housden points out in the underlying theme of his book, it is of greater importance to recognise the causes of cruelty and work towards their prevention.

In Part III, which looks to "The Future," these causes are discussed: "the effect of environment both personal and material . . . the ill-health, fatigue, despondency, negligence and general fecklessness of long-endured squalor and disorder . . . creating the state of mind which rejects, neglects and finally cruelly ill-uses the children." To these are added the unwanted children from broken homes, the illegitimate children who are rejected and the mentally backward child subject to the action of distraught parents. Many other causes are cited, which lead to the final and most hopeful chapter of the book, on "Prevention of Cruelty."

Bearing in mind the effect of environment, prevention must aim at the children and young people who are growing up in conditions of squalor and neglect. They must be given opportunities for better housing, with facilities for washing and cooking, education in citizenship and parentcraft and help in avoiding marriage with the wrong kind of partner.

In addition, the social environment must be made healthier for the young and parents must be encouraged to accept responsibility for the welfare of their children.

This plan for prevention is set out in "sixteen articles which if carried out together and on a national scale would do much to prevent cruelty to children."

The facilities are there but there is urgent need to extend and correlate their use and to emphasise continually the need for wider application of these preventive measures. To this end it is hoped that Dr. Housden's book will be widely read and discussed, and not forgotten. If the conditions which he describes are ignored, because only a small proportion of the population is involved, there is danger that each growing generation will, in its turn, perpetuate and multiply the family units, among whom neglect and cruelty to children is found.

The Health of Regionville: What the People Thought and Did About It. By EARL LOMON KOOS. (Pp. 177. Price \$3.25.) New York: Columbia University Press, 1954.

Regionville is a pseudonym of a small town in the hill country of New York State, and it was chosen for study partly because of its "average" character and partly because it lay within the boundaries of an experiment in regional comparison between general medical and hospital services. Dr. Koos and his staff interviewed more than 500 families during the course of a year. The population under study was stratified into three social classes, and whereas some of the characteristics of these social groupings are similar to those of the Registrar General's classification, Regionville's class III seemed to contain many families which we would have classified as IV and V. In addition some of these families even presented distinct "problem" characteristics. Each social class represents a subculture which imposes patterns of behaviour upon its members, and the findings of this investigation are in essence a comparison of health attitudes and behaviour in the three groups. The investigation was conducted under strict statistical control, and the appendix which explains the "methodology" reveals the care taken to avoid the typical pitfalls of this type of investigation.

There was a sickness gradient according to social class. Of the 2,204 individuals comprising the 514 families, 43% had no illnesses in 12 months. Of the remainder, members of class I had 1.35 illnesses per head, of which 33% were not treated. In class II there were 1.56 illnesses per head of which 18% were not treated, while class III showed 2.16 illnesses per head of which 33% were not treated. Respiratory diseases accounted for the bulk of the total illnesses, but pneumonia was not frequent and cancer figured least of all.

A novel finding concerned the attitude to illness which determined whether "anything was done about it." For example, the symptom of blood in the urine was recognised by all three classes as calling for treatment, but class III families did not recognise backache or bleeding gums as illness. Anxiety as to the cost of treatment and loss of earnings was an important obstacle in both classes II and III, even such unpleasant conditions as severe uterine prolapse being tolerated. A sense of urgency and the need for group approval was often the chief stimulus to send for a doctor; as one young mother in class I put it: "I know that some of the girls don't think that they need a baby doctor regularly, but they go along because it is what we all think we are supposed to do."

The investigators also examined the attitude to the druggist and to the unorthodox practitioner. Laxatives were used regularly in all three groups, but whereas class III families always kept kidney, liver and stomach remedies in stock, only 3% of class I households possessed these remedies. On the other hand class I families liked to have eye lotion in the house, whereas this medicament was not considered necessary by class III. In both classes II and III taking care of one's health was believed to be largely a matter of self-doctoring.

The easier approach and lower fees of the unorthodox practitioners made them more attractive to households in class II and III, whereas they were very little used by class I families. It is remarkable to see how frequently patients made use of both orthodox and unorthodox practitioners, breaking off the treatment of either in order to make a change. Family physicians



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were usually reluctant to visit people in their homes, and the reader gains the impression that the doctor-patient relationship was not always an easy one, also that there was wide variation in the standard of practice. The attitude to hospitals was also strange, and a substantial number of people stated that they "disliked nurses as persons."

The author's conclusions and speculations are interesting. Perception of health is partly due to the subculture and partly due to how much the subculture can do about it—particularly in a financial sense. Such perception is determined by the degree to which the individual feels accepted in the community. In this country we would hardly agree with Koos's conclusion that an emotionally impoverished life created a need to ignore conditions which might presage ill-health. Lest we imagine that by relieving our community of the personal financial burden of treatment we have brought about a change in attitude, a close study of the latest analysis by the Ministry of National Insurance of the claims for sickness benefit will come as a shock. We must fully agree, however, with Koos's observation that perception results from the communication given by formal education and that this is of importance from the point of view of health education.

This is a really worth-while study, clearly written and commendably brief. The many tables of results should provide valuable material for lecturers and suggestions for similar surveys in this country. No serious student of social medicine can afford to be without this book.

SOCIETY OF MEDICAL OFFICERS OF HEALTH SERVICES GROUP

President : Air Vice-Marshal F. E. Lipscomb, C.B.E., Q.H.P.

Hon. Secretary : Dr. H. D. Chalke, O.B.E. (M.O.H., Camberwell and Div. M.O. L.C.C.).

The Group paid a whole-day visit to the Army School of Health, Mytchett (by kind invitation of the Commandant Col. M. R. Burke, O.B.E.), on Saturday, May 28th, 1955. Despite the impending railway strike, 27 members were present.

A full and varied programme had been arranged, which comprised many different aspects of Army Health instruction and control : it was much enjoyed by members and guests. After opening addresses by the Director of Army Health (Brigadier A. E. Campbell, M.D., D.P.H., Q.H.P.) and the Commandant, a tour was made of the different departments of the School. These were familiar to many of those present, but there were noticeable changes indicative of the continued advances made in the study and teaching of Army Health. The section devoted to the trials of preparations of the new insecticides was particularly interesting. A demonstration and talk on new methods of instruction and aids, which included a playlet, was followed by an impressive tableau of the hygiene and domestic problems which occur in an overseas station : this was a striking example of the worth of new teaching methods.

After luncheon in the Mess, the party witnessed the results of an atomic attack on a model town. An unexpected explosion which has become quite a feature of the Group's visits to Service Establishments did much to dissipate post-prandial somnolence. The demonstration was very well devised ; it brought out vividly the public health problems which would arise in a catastrophe of this nature. This, and a talk on problems of radio-activity, stimulated brisk discussion on the public health aspects of an atomic war.

The President of the Group proposed a vote of thanks to the Commandant and his staff for the excellent programme they had provided, and also for their hospitality and the giving up of a Whit-Saturday in order to instruct and entertain the Group.

The meeting concluded with tea in the Mess, and members departed with the feeling that seldom had a visit been so worthwhile and so enjoyable.

Annual General Meeting, May 28th, 1955

The following Officers were elected for the Session 1955-56 :—

President.—Dr. J. A. Struthers.

Vice-Presidents.—Surgeon-Rear-Admiral D. Duncan, O.B.E., Q.H.P., Major-General T. Young, C.B., O.B.E., Q.H.P., Dr. G. M. Frizelle and Air-Vice-Marshal F. E. Lipscomb, C.B.E., Q.H.P.

Hon. Secretary and Treasurer.—Dr. H. D. Chalke, O.B.E., T.D.

Hon. Asst. Secretary and Treasurer.—Dr. F. G. Brown.

Committee.—Surgeon-Captain R. L. G. Proctor, R.N., Brigadier A. E. Campbell, Q.H.P., Air-Commodore P. B. Lee-Potter, C.B.E., Q.H.S., Dr. Andrew Topping, C.M.G., T.D., Air-Vice-Marshal T. McClurkin, Drs. V. O. B. Gartside, E. H. R. Smithard, M.B.E., and J. Craig Lindsay, T.D.

Representatives on the Council of the Society.—Drs. H. D. Chalke and J. A. Struthers.

NORTH WESTERN M. & C.W. AND S.H.S. SUB-GROUPS

President: Dr. Barbara Knight (Asst. Div. M.O., Lancashire).
Hon. Secretary: Dr. L. Cromack (S.M.O., Manchester).

A meeting of the Sub-Groups was held in the Public Health Committee Room, Town Hall, Manchester, on Friday, May 20th.

The speaker was Miss Dora M. Taylor, L.L.A., Inspector of Special Schools, Manchester Education Committee, on the subject "Home Teaching of Children too Handicapped to Attend School."

Miss Taylor was then introduced by the President, and opened her remarks by referring to that section of the Education Act which made it possible for a Local Education Authority to provide teaching for certain handicapped pupils in the home. The teacher's job was more than to teach formal education subjects, it was to teach the children how to live with their handicap, and similarly, the people with whom the children were living. She gave one or two examples of the types of case, referring to the first child ever being dealt with under this scheme—a boy with haemophilia who was taught in the first place through correspondence by a teacher who was a helpless cripple confined to bed in a home. One difficulty in this form of teaching is the fact that ordinary teachers can usually only go after 3.30 p.m., sometimes quite late. In this particular child's case, another teacher visited from time to time, and on the first occasion was able to help when the child had an attack of bleeding, and this gave the child and the parents confidence. Later, a man teacher was allocated who had two children of his own. An exchange of film strips, etc., was made by this boy with the teacher's and neighbour's children. Some homes were not always as good as the first one, and some parents were not so co-operative.

The second boy to be dealt with was one who was ill for nine years, but after an operation on his heart, was cured. He was not considered fit to go to school to start with, but had to be prepared first. After six months he was able to attend a day open-air school.

One of the greatest assets a teacher could have was ingenuity. Children were encouraged to keep diaries, preferably illustrated, and these were often "swapped" with other handicapped pupils. Similarly, gramophone records, children's own paintings, photographs and letters were exchanged. It was hoped to do likewise with tape recordings in the future.

Some results were not satisfactory, and failures were due to lack of co-operation of the children and parents. One child made the trite remark that he liked home teaching because it gave him someone to have a holiday from. It did, however, help most handicapped children to enter a world which was not full of challenges which he or she could not meet. To teach such children was a challenge and a privilege to the teacher of the handicapped child.

VITAL STATISTICS, ENGLAND AND WALES, SECOND QUARTER

The Registrar General has announced the provisional figures of births and death in England and Wales in the second quarter of 1955.

Live Births.—Live births registered numbered 171,191, representing a rate of 15.5 per thousand population. This is the lowest rate for a June quarter in any peacetime year since 1936. In that year the rate was also 15.5 but the number of births was much lower (157,652). In comparing rates for the two years 1936 and 1955 one has, of course, to bear in mind the increase in population that has taken place, especially in the older ages outside the child-bearing range. While the number of births

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for the June quarter, 1955, has dropped 2½% as compared with that for the June quarter, 1954, (175,466), it is 8½% higher than the number for the corresponding quarter of 1936.

Deaths.—There were 124,169 deaths registered in the June quarter, 1955, representing a rate of 11.2 per thousand population, compared with 117,233 and a rate of 10.6 in the second quarter of 1954 and 114,644 (rate 10.4) in the second quarter of 1953.

Deaths of children under one year of age numbered 4,125, giving a new record low rate for a June quarter of 24.4 per thousand related live births, compared with 4,262 and a rate of 24.7 in the second quarter of 1954 (the previous record). In 1938 the corresponding figures were 8,006 and 50.3 respectively.

Stillbirths.—There were 4,017 stillbirths registered, giving a rate of 22.9 per thousand live and stillbirths, compared with 4,153 and a rate of 23.1 in the corresponding quarter of 1954. The figures for the second quarter of 1938 were 6,639 and 38.9 respectively.

In the following table the numbers and rates of live births, stillbirths, deaths and deaths of children under one year of age registered in the second quarter of 1955 are compared with those for the second quarters of 1954, 1953 and 1938.

* The Registrar General's Weekly Return No. 28, 1955. H.M.S.O. price 1s. net (or by post from P.O. Box 569, London, S.E.1., price 1s. 1½).

Second Quarter of :—	Live Births		Stillbirths		Deaths (including Non-civilians)		Deaths of Infants under one year	
	Number	Per 1,000 population	Number	Per 1,000 total live and stillbirths	Number	Per 1,000 population	Number	Per 1,000
1955	171,191	15.5	4,017	22.9	124,169	11.2	4,125	24.4
1954	175,466	15.9	4,153	23.1	117,233	10.6	4,262	24.7
1953	179,477	16.3	4,220	23.0	114,644	10.4	4,448	25.2
1938	164,179	16.0	6,639	38.9	119,188	11.6	8,006	50.3

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1 Report to M.R.C. of Tuberculosis Chemotherapy Trials Committee, *Brit. Med. J.*, 1955, **1**, 435.

2 *J. Pharmacy & Pharmacol.*, 1953, **5**, 849.

3 *Schweiz. med. Wschr.* 1955, **85**, 222.

4 *Tubercle* 1955, **36**, 209.

5 *Lancet*, 1955, **1**, 110.

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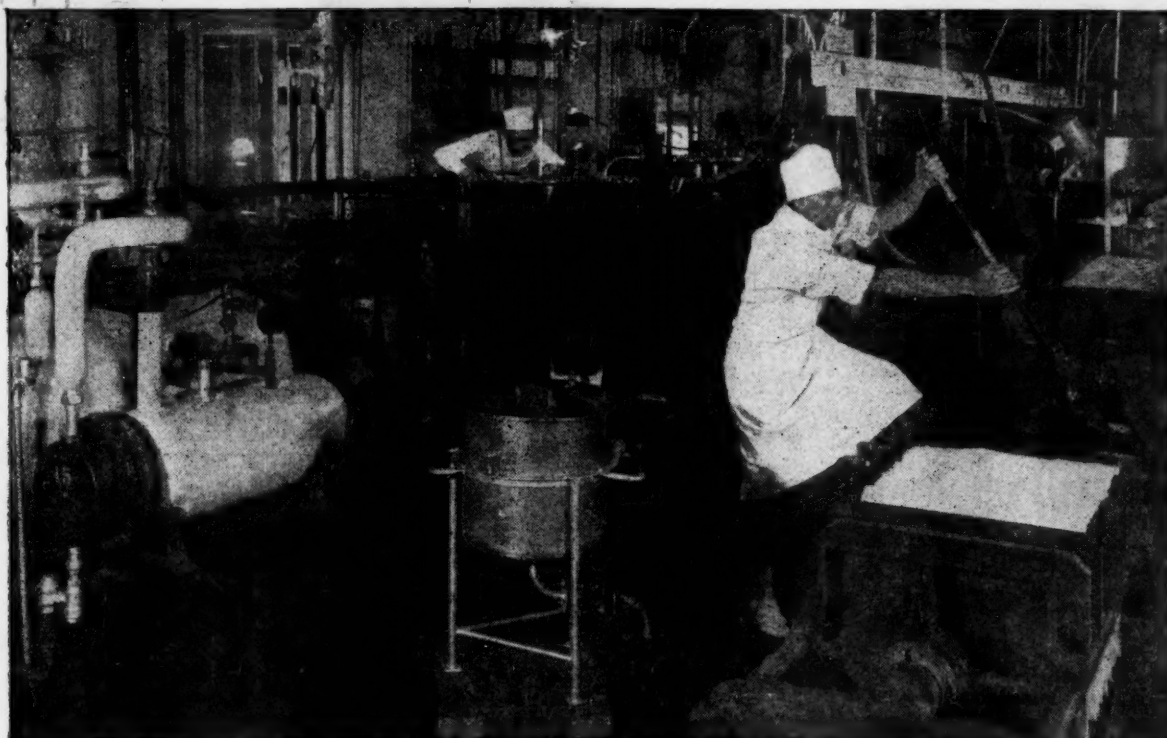
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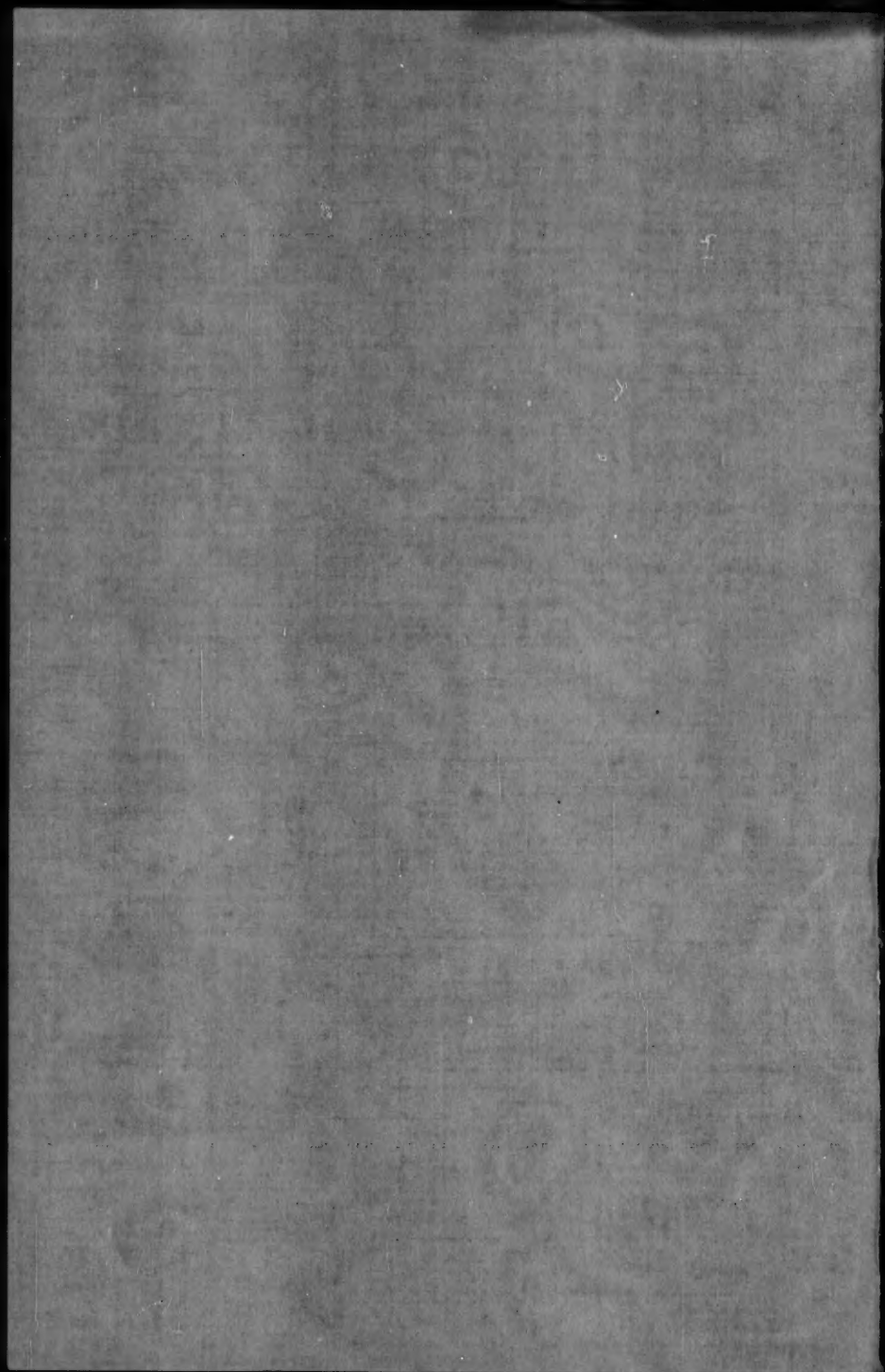
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INTRODUCTION

The National Health Service and National Assistance Acts have been in force for over six years. Their operation, quite apart from the changes in medical administration, has resulted in increased attention being paid to the amount of sickness among the people and the increasingly heavy cost of remedial measures.

There is general agreement that much of this ill health is preventable, but the special skills needed for applying means of prevention do not seem to be well understood, and the tendency remains to concentrate upon perfecting and extending methods of treating specific diseases rather than upon measures for raising the standard of community health as a whole, whereby much of the sickness could be avoided.

The Society of Medical Officers of Health recognise that full facilities for the restoration of individual health must be provided and appreciate that this is the main reason why so much emphasis is placed upon curative medicine. Nevertheless they hold the view, and have long contended, that by strengthening in every possible way the means of prevention, which are today available, the amount of ill health could be reduced within a reasonably short period.

Preventive services are mainly administered by Local Government Authorities. To those unfamiliar with the procedures of such bodies the several types, with varying powers, and differing in area, population and financial resources, may appear unsuitable units for medical administration. Legislation however takes these variations into account and over many decades a system has evolved which in spite of imperfections, is a matter of national pride and has produced results admitted to be remarkable.

The story of these achievements is that of the Medical Officer of Health carrying out his functions in accordance with the policies of the Local Authorities, limited however, by the powers conferred, and the duties imposed, by Parliament.

The Society therefore believes that a valuable contribution can be made to medical administration as a whole by giving a reasoned account of what in its view should be—and in many progressive authorities are—the functions of the Medical Officer of Health. This has been done in the hope that it will be carefully studied by all who shape or influence medical policy, even though they may not be strictly engaged in its administration.

To aid Local Government Authorities in the administration of their extensive health services, a statutory obligation has been laid upon them to appoint a Medical Officer of Health. The duty of this officer is to ascertain, report and advise upon all conditions

which affect the health of the community. In accordance with the terms of his appointment he must also carry out such duties as may be assigned to him by his authority. The Medical Officer of Health is therefore responsible for certain statutory duties, and as an administrative medical officer for directing a wide range of medical and social service. In these capacities he is the leader of a team of trained personnel actively concerned with the physical and mental health of the people. In many directions his work is linked with that of other departmental officers and with local and national voluntary agencies who have interests related to the field of preventive medicine.

This document does not purport to cover all the multifarious duties of a medical officer of health. It is not a detailed and exhaustive survey. It deals only with broad general principles. It concerns itself with the contribution which the medical officer of health can make, if given the opportunity, to improve the health of the community and make our National Health Service more effective. The recollection of what medical officers of health were called upon to do during the recent war is still fresh in the memories of many. Today, while war clouds are still undispersed, civil defence problems necessarily occupy varying amounts of time in the day of the M.O.H. But, this, we hope, is evanescent and those problems, important though they are, receive no further mention in the document.

There is, in many quarters, a lack of knowledge or of understanding of the duties and functions of the medical officer of health. There is still the idea even among some members of local authorities and many of the medical profession that he spends much of his time dealing with drains and sewers. Those who write for the newspapers and many of those who read them are aware of his existence only when an epidemic has got out of hand and strikes the headlines. His work, even in preventing epidemics, is unmentioned and unknown. His main duties are, to most, a closed book which has never been opened.

It is hoped by this reasoned statement of the potentialities of preventive work, under the leadership of the medical officer of health that the relative importance of his various duties can be put in their proper perspective.

Summary

Its salient features may be summarised as follows:—

1. Part I develops the theme that the Medical Officer of Health should be the guardian of the community health.
2. An appeal is made for a recognition of the integrity of the subject of community health in place of the past and present tendency to split it up into watertight sections.
3. This does not in any sense entail or demand a return to past administrative structures. On the contrary, the Medical Officer of Health is concerned much more with the application of principles governing his work than with forms of government.

Looking to the future he is confident that these principles can be successfully applied and that he can be accorded a sufficient place of authority whether the administrative structure of our health service is united into a single whole or divided into separate parts; whether it remains under local government or central government.

4. The Services for which the Medical Officer of Health should be executively responsible are set out in Part II and under each heading a few of the main controversial points are discussed with the object of defining the boundaries of the Community Health Services.
5. Part III emphasises the need for the Medical Officer of Health to be placed in a position to advise on the medical aspects of other services, of which he need not be in executive control, where these affect the community health.
6. Part IV states his overall duty to have regard for all circumstances which may adversely affect the community health of his area.

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PART I

What is Needed for Community Health

1. This country is dependent on the maximum output of its effective manpower and cannot afford an undue amount of illness. The study and practice of preventive and social medicine are therefore paramount. Present day problems of preventive medicine are greater than ever before because so much more is known regarding them. They have become immediate and urgent. They are concerned with conditions which surround a man from infancy to old age, and include the forces of nature, climate, his house, his workshop, the human society in which he moves, his social, economic and domestic circumstances, his food and drink, his habits, the strains and stresses of his life, the parasites and poisons, the agents of infection. All these are his environment. Preventive and social medicine must cover them all and must challenge all illness, mental or physical, all disabilities inherited or acquired. The background against which the Public Health Act of 1875 was framed has so greatly altered that we need to consider again what is necessary to protect community health.

2. Our object has been to define the principles which must govern the work of the Medical Officer of Health in safeguarding community health, and which can be applied within a wide range of administrative arrangements. A return to the situation which existed before the National Health Service Act is not essential. Much could be done to implement the principles set out within the existing framework. They could be better applied in a less complicated administrative system by the reorganisation of local government. This controversial issue is mentioned only to emphasise that the application of the principles is of chief importance and the administrative framework, although itself of great significance, is of secondary importance.

3. However, the principles here outlined require that the Medical Officer of Health shall be in a position of authority over both environmental and personal preventive medicine (whether in service to one or more authorities). The terms 'community health' and 'community health authority' indicate this total concept without reference to the complications of our system of government.

4. Whilst a unification of all health services under one jurisdiction is desirable there is an equal, if not greater, need that peoples' minds should be focussed upon preserving and promoting community health rather than upon curative medicine. Medical teaching has always emphasised the microscope and the post-mortem room and the paraphernalia of curative medicine to the exclusion of social medicine. Prevention lacks the drama and glamour of curative medicine; it is an abstract idea, difficult to comprehend and

rarely showing an immediate economic return. The Medical Officer of Health can enlighten the public mind on such matters and emphasise in his development of the community health services the essential unity of curative and preventive medicine.

5 (i). A uniform approach to the problem of community health, transcends in importance the detailed consideration of the individual items which go to make up the duties of a Medical Officer of Health. The important fact to grasp is the failure of our legislators to recognise the identity of community health. This is shown by the manner in which responsibilities for inter-related functions have been placed upon the shoulders of different authorities, and in which community health administration has been divided among a variety of bodies.

(ii). From the early years of Public Health to modern times the dysgenic effects of specialisation have reduced the field of work of the Medical Officer of Health and made it difficult, if not impossible, for him to comprehend the whole subject of health in his area ; as a result there is duplication and overlap with consequent waste of effort and lessened efficiency. Community health is as much a subject for unified approach as is individual health. Both are in danger from over-specialisation.

6 (i). Many have thought that any machinery established to deal with health problems can be adequately served if supplied with independent medical advice. When this advice operates in watertight compartments much of its value is lost. There is need now for the unification of preventive medicine, with the Medical Officer of Health co-ordinating medical advice. In this way our limited resources in money and manpower can be effectively and economically deployed, and the total resources of the health department can be brought to bear on all problems of social medicine.

(ii). Hence our concern for such apparently diverse aspects of community health as Occupational Health, the Care of the Deprived Child and the Care of the Aged. None of them should be regarded as problems capable of independent solution. They are closely related problems ; failure to relate the action taken for one with the needs of the other is detrimental to the work of the whole and wasteful of the nation's money. In so far as they are all necessary for the protection of the community health they should fall within the co-ordinating sphere of the Medical Officer of Health.

7. This unity should be recognised by Statute, since it is as vital to national as it is to local considerations. This work of co-ordinating can most satisfactorily be carried out under the general direction of the Medical Officer of Health who must have full statutory power to enable him to apply medical and scientific principles to the eradication of disease from the community for which he is given responsibility.

8. As guardian of the community health the Medical Officer of Health must be vested with authority over matters which are vital

to its preservation. His duties must, therefore, entail the organisation and executive control of many services, some wholly medical, (e.g., the school health service) and others partly medical (as the ambulance service) because their whole purpose is to serve the ends of medicine. In the organisation of these services he must be assisted by competent staff, professional, technical and clerical.

9. While he must be responsible to his authority for the co-ordinated protection of the community health, delegation is possible to medical and non-medical staff with special qualifications and/or experience ; thus, he should be assisted in his arrangements for the care of deprived children by a children's officer, whether doctor or university graduate in Social Science; in the ambulance service by a lay administrator with appropriate training, and in services for the handicapped and aged by someone with special knowledge of social activities and handicrafts. Delegation of functions should be a natural part of the overall medical control.

10. The Medical Officer of Health should be the leader of a team of professional men and women trained and practised in the application of preventive and social medicine ; doctors, dentists, health visitors, home nurses, midwives, sanitary inspectors, health education officers, statisticians, welfare officers, children officers, psychiatric social workers and other mental health workers, V.D. health visitors, etc. He should co-ordinate their common task of protecting the community health.

11. The Medical Officer of Health should be prepared to undertake whatever duties the protection of the community health may call for and no other boundary to his work should be recognised. These duties may be at the office desk or in the Committee Room; they may take him to the homes of the people, to schools and factories or they may involve the administration of certain institutions concerned with community health. In addition he should have special knowledge of clinical medicine in the treatment and control of communicable diseases.

12. The protection of community health also requires that the Medical Officer of Health shall be assisted by all the developments of modern medicine in the form of diagnostic clinics, specially equipped institutions for priority classes, and by the assistance of various specialists. Whatever may be the division of responsibility it must be ensured that the Medical Officer of Health is in a position to make the most effective integration of such special services.

13. It is important to draw a distinction between various types of institution. Some are primarily designed to safeguard the community health, as distinct from the treatment of the individual. Into this category we place maternity homes for normal midwifery, sanatoria, fever hospitals, mental deficiency colonies, certain specialist and diagnostic clinics (as in the school health service), and mass radiography. We elaborate our reasons below. In a divided health service the Medical Officer of Health should have

such authority in relation to the provision and use of these institutions as to ensure that their primary purpose of safeguarding community health is guaranteed, either under the control of the community health authority or by other means.

14. The Medical Officer of Health should play an active part in planning the curative services which are intimately bound up with services for the prevention of disease. Particularly is this so in those many aspects of curative medicine which call for integration with other social services as, for example, care and after-care, home nursing and the care of the chronic sick.

15. It follows that in the present health service, which separates administratively curative and preventive services, Medical Officers of Health should be directly represented on the appropriate governing bodies.

16. Again, in a divided health service a local committee, with statutory recognition and power to act and composed of members of the various governing bodies, should be appointed in each region (or other chosen unit) to study integration and to promote a proper balance between curative and preventive services. (Since this document was first drafted the Committee on Co-operation of the Central Health Services Council has recommended the setting up of such committees for local areas based on hospital "catchments").

17 (i). The duties which must fall to a Medical Officer of Health require that he shall be fully and adequately trained. The graduate who elects for community health work should now be required to proceed through a five-year training at Registrar status, as recommended by the Spens Report for other specialists. This period should be designed to ensure that he has adequate background training in the appropriate disciplines.

(ii). The training of the health visitor will also need to be carefully considered. We regard her as a social worker with the widest of general interests in the field of community health, the "general practitioner" of social medicine—in the homes of the people, in schools, clinics, factories, workplaces and offices, teaching health, mental and physical, and dealing with the adverse social factors which contribute to illness; and as the important ally of the general practitioner and as the link with hospitals for care and after-care. The scope of her work has grown slowly with that of social medicine; its recent extension to the whole field of community health makes it necessary to review her training. This will mean the extension of her postgraduate training; the adoption of the nurse's basic two-year course recommended by the Working Party on Nursing would help this by reducing the time spent in hospital; the course should be organised by large local health departments in co-operation with university departments of social medicine and social science or other places of higher education.

(iii). The training of other workers in community health

(notably the sanitary inspector, the psychiatric social worker and the authorised officer) is also in need of careful scrutiny to ensure that it is adapted to the wider fields of modern executive social medicine.

18 (i). The Medical Officer of Health is a specialist in problems of community health; as such he is concerned with social medicine as a discipline affecting the community.

(ii). His work includes the operation of two types of service, those which affect the environment of the community as a whole; and those more recent services which have the individual as their objective; not as a sick person but as one of a class of susceptible persons whose safety and health are of importance to community health. This is the growing point of "executive social medicine"; the services for the susceptible groups—the mother and her young child, the school child, the tuberculous and those with venereal disease—were its first fruits; today new groups of susceptibles are added—the deprived child, the handicapped, the aged, the chronic sick, the factory worker.

(iii). Community social medicine places the Medical Officer of Health in a doctor-community relationship similar to, but distinct from, the doctor-patient relationship of a family or hospital physician. The two are complementary.

(iv). The Medical Officer of Health must study and understand the community in all the intimate details of its life, just as a family or hospital physician studies his patient, and he must be in a close personal relationship with those responsible for people in sickness. Executive social medicine requires the closest attention to detail; the Medical Officer of Health must be in a position to get down to basic facts of community life; he must strike at the root of disease by changing the living conditions and habits of the people.

(v). The working unit for a community health service must clearly not be too large; a population of 100,000-150,000 would not be unreasonable, with variations to meet the differing circumstances of geography and industry. The staffing of these units would entail between 500 and 750 whole-time Medical Officers of Health; approximately one to every 30 to 40 general practitioners and one to every 4 to 6 specialists in curative medicine. This number of whole-time specialists in community health is essential to knit together the two important fields of curative and preventive medicine and is in balance with the use of doctors in the other fields of work.

19. We comment below on the duties to be carried out by the Medical Officer of Health giving reasons, where appropriate. These duties are classed as follows:—

- (1) Services for which the Medical Officer of Health should be executively responsible.
- (2) Services for which he should have a duty to advise on medical aspects.
- (3) The general duty of considering all matters affecting the health of the area.

PART II

SERVICES FOR WHICH THE MEDICAL OFFICER OF HEALTH SHOULD BE EXECUTIVELY RESPONSIBLE.

20. The services for which the Medical Officer of Health should be executively responsible are given under the following headings:—

1. Environmental Health Service.

(A) The Physical Environment. (Paras. 21-31).

(B) Epidemiology. (Paras. 32-40).

2. Personal Health Services.

(A) Of general application:

(1) Health Education. (Paras. 41-45).

(2) Care and After-Care. (Paras. 46-52).

(3) Health Centres. (Para. 53).

(4) Survey Clinics. (Para. 54).

(5) Ambulance Service. (Para 55).

(B) Of application to special groups:

(1) Care of the Mother and Young Child. (Paras. 56-71).

(2) Care of the School Child. (Paras. 68-80).

(3) Care of the Deprived Child. (Paras. 81-87).

(4) Care of the Adolescent and Adult in Industry (Occupational Health). (Paras. 88-104).

(5) Care of the Mentally Ill and the Mental Defective. (Paras. 105-111).

(6) Care of the Aged. (Paras. 112-119).

(7) Care of the Handicapped. (Paras. 120-122).

Under each of these headings a few of the salient points are dealt with as an indication of what we regard as the correct course of action where differences of opinion exist.

1. Environmental Health Service.

(A) THE PHYSICAL ENVIRONMENT.

21. If perfect correspondence with environment would be perfect life, any departure from that relation is the beginning of disease. Disease is, therefore, the reaction of the human body to irregularity in its environment. Just as the environment affects bodily health through infection and injury, so also its stresses and strains may cause mental ill-health. Many of these factors are dealt with in the section we devote to the personal health services because these services are designed to affect not only the outside world but also, and *directly*, the person himself and *his* behaviour.

22 (i). Despite the improvement in environmental conditions, their maintenance remains one of the M.O.H's most important functions. Adverse environmental circumstances are still respon-

sible for much illness despite the operation of sanitary legislation for a hundred years. Bad housing, with inadequate ventilation, dampness, overcrowding and congested sleeping quarters, absence of proper water supplies and baths; diseased, infected and adulterated foods; polluted water and milk supplies; insanitary work-places and offices with harmful dusts and spreading infections; squalid, overcrowded and insanitary schools; smoky atmospheres and lack of sunlight; overflowing dustbins and cesspools; insanitary earth closets; all these make the conditions in which disease flourishes.

(ii). This list represents the grosser and aesthetically unpleasant kinds of environmental handicap. But environment also includes all that lies outside ourselves, e.g. nutritional factors, personal relationships, industrial fatigues and specific occupational hazards. The crowded house is a menace not only because infection flourishes in such conditions, or because the accident risk there is greater, but above all because frustration and unhappiness follow and moral standards are impaired.

23. The statutory powers of the Medical Officer of Health are conferred by many Acts, Regulations and Orders; notably the Public Health Act, 1936; the Food and Drugs Act, 1938; the Milk and Dairies Regulations, 1949; the Factories Acts, 1937 and 1948; the Housing Act, 1936-1949; the Local Government Act, 1933 (Part IV), which governs the Sanitary Officers' (Outside London) Regulations, 1935 and similar enactments in Scotland. For simplicity only the English Enactments are quoted in this memorandum. This sanitary code carefully evolved over a century is admirably suited to its purpose; it must, however, be emphasised that it forms an essential part of social medicine and requires, for successful operation, a trained medical mind.

24. This gives point to the present day concern for the relationship of the Sanitary Inspector to the Medical Officer of Health. In accordance with Article 19(1) of the Sanitary Officers (O.L.) Regs. 1935, a Medical Officer of Health is responsible for directing generally the performance of all the duties imposed on the sanitary inspector by Statute, Orders, Regulations or Bye-laws. The relationship is similar to that of many other types of professional worker in the health department. The Medical Officer of Health must supervise generally the sanitary inspectors in regard to the carrying out of their duties under the Act, including those relating to infectious and other diseases, nuisances, and environmental conditions generally. The design of this legislation is positive in character and indicates a true appreciation of the function of a Medical Officer of Health. This relationship must be retained, not only for the effective integration of the community health services but also because without it the future development of social medical care will be hampered. We hope to see an extension of the case conference, in which the sanitary inspector, as all health workers, should participate; structural housing conditions, in the relief of which sanitary inspectors play a vital part, are always a matter of prime importance.

Moreover sanitary inspectors, if divorced from the health department and the general direction of the Medical Officer of Health, will themselves suffer in their professional competence and usefulness, and as a group will become like the branch severed from the tree.

25 (i). Food and housing are the greatest environmental factors in the physical plane. The nutritional aspects of community health are of prime importance and the Medical Officer of Health should be concerned in the securing of adequate dietaries where their provision is a duty of local authorities, e.g. in children's homes, schools, nurseries, etc. He must also, by health education, bring home the significance of adequate feeding in growing children, in mothers, and indeed in the whole community. Then there are the risks of unsound, diseased, contaminated and adulterated foodstuffs. The Medical Officer of Health must secure in his district the effective application of the provisions of the Food and Drugs Acts, and other Acts, Regulations and Bye-Laws with regard to food of the above description. He must secure that methods of handling, preparing and wrapping food are satisfactory, and that they comply in all respects with the relevant bye-laws. He should inspect from time to time and exercise general supervision, both personally and through the sanitary inspectorate staff, over slaughter-houses, cold stores, dairies (cowsheds), milkshops, canteens, non-domestic food kitchens and all other premises within his district where food of any kind is prepared, stored, or otherwise dealt with for sale or preparation for sale and intended for the food of man.

(ii). The purity of our meat supplies is still of great importance. From long experience of meat inspection we are convinced that health will best be safeguarded where this work is closely related to other aspects of social medicine. It should not be removed from the sphere of the Medical Officer of Health. The work can be adequately handled by the sanitary inspector; indeed we regard him by training and outlook as the most satisfactory person to be immediately concerned. If, however, the work is transferred to a veterinary officer, then he should be on the staff of the Medical Officer of Health.

(iii). The Medical Officer of Health should supervise the administration of the Food and Drugs Acts, (and like provisions,) and he should advise those who have the work to do. He should be consulted by the local authority on all plans submitted for food preparing premises, canteens, etc. This simple precaution would ensure what is now not always secured, that adequate washing facilities are available for the staff and for any persons using the toilets.

26. Recent changes in legislation in England virtually exclude the Medical Officer of Health and his staff from supervision of farm premises where milk is produced. Except in the control of infectious disease he has no statutory duty or rights in regard to the production of milk. When it is remembered that milk is the most important

single food and that it is most important and most used at childhood ages, it is obvious that its production is a matter of great concern. The health of cattle is a proper subject for control by veterinary surgeons and departments of agriculture; but the methods of production, involving considerations of the sanitary and structural state of the cowshed, facilities for pure water supply and effective drainage, control of flies, sterilisation of apparatus, and methods of personnel, should be supervised by sanitary officers of the health department familiar with local circumstances, responsible for the sanitary supervision of that and neighbouring buildings. The multiplicity of licensing systems, and the division of responsibility between the three Ministers and various local authorities introduces a danger that there is no one person ultimately concerned in any district to secure that health is not endangered.

27. The Medical Officer of Health must continue to be responsible for ensuring that the public water supply is pure and safe. He is interested not only in the water as supplied at the tap, but also in the collection side of the water undertaking. An elementary knowledge of water undertakings will show the danger of placing total reliance on sampling at the town's house taps. (Ministry of Health Memorandum 221 (rev. 1948) paras. 5 (health of workmen) and 15 (analysis)).

28. The ill-effects of bad housing upon health call for the closest attention of the Medical Officer of Health and fully justify the important duties which devolve on him under the Housing Acts. Overcrowding is a potent factor in the spread of tuberculosis, the upper respiratory catarrhs and droplet infections generally; dampness leads to a cheerlessly cold house and predisposes to the respiratory illnesses; inadequate or inconvenient sanitary conveniences lead to the rapid spread of epidemic gastro-intestinal disorders. In addition to those duties expressly imposed by the provisions of the Housing Acts, such as repairs, demolitions, clearance areas, and overcrowding surveys, every Medical Officer of Health should advise on questions relating to housing conditions, on priorities on medical-social grounds for rehousing, and on certain aspects in the preparation of housing and town planning schemes. His familiarity with population statistics and statistical methods makes invaluable his advice in his council's consideration of both the numbers of and room accommodation in houses.

29. Except for the Factories Act of 1937 and for his responsibilities by virtue of "general direction" under the Sanitary Officers (Outside London) Regulations, 1935, the Medical Officer of Health has little responsibility for the industrial and occupational conditions of his area as they affect health—perhaps the most obvious deficiency in the present machinery for protecting community health. (See section 4).

30. Atmospheric pollution is still unfortunately of much concern to the Medical Officer of Health. This anachronism in a civilised

state is a continual denial of the concept of positive health; it may be one of the factors contributing to chronic respiratory disease, and even carcinoma of the lung. The technical aspects of fuel consumption and efficient management of plant are naturally matters for experts but smoke abatement (by the initiation of smokeless zones, and the implementation of the Public Health Acts) is work for the Medical Officer of Health.

31. Accident prevention outside the home is the concern of the police but within the home it should be one of the functions of the health department. The teaching of accident avoidance, particularly for the very young and the aged, can be undertaken in clinics, and at home by health visitors and home nurses.

(B) EPIDEMIOLOGY.

32. A wide range of diseases are common to, or affect at the same time a large number in a community. This epidemic aspect of disease falls peculiarly within the province of the Medical Officer of Health and its study must be regarded as part of his statutory duty "to inform himself as far as practicable of all matters affecting or likely to affect the public health in the district and to be prepared to advise the local authority on any such matter" (Art. 17 Sanitary Officers (Outside London) Regulations, 1935). In the past, the Medical Officer of Health, with the help of the Bacteriologist, pioneered the knowledge of the epidemiology of the infectious diseases, and in a large measure secured control of the more serious. In the future he should be the key person in the working out of the epidemiology of the non-infectious diseases, particularly the so-called stress and degenerative diseases, which today so seriously hamper the efficiency of the working population, and so often render the increase in the length of life a burden rather than a blessing. What M'Gonigle and others have done to unravel the epidemic nature of nutritional disease can now be extended, as Ryle and Crew have emphasised, to the whole range of man's afflictions, including such diverse aspects as stillbirths and coronary disease.

33. The practical application of epidemiology demands the expert assistance of the statistician, whose services should now be made available to all health departments. The statistical section should be concerned not only with the traditional figures of mortality but also with morbidity, of which more accurate study is now much overdue. Ways and means must be devised to secure that the Medical Officer of Health is fully informed of the incidence and trends of sickness in his area. A beginning has been made by the Ministry of National Insurance—a valuable advance which should be encouraged and extended. Statistical bureaux could conveniently be developed on a regional basis.

34. The epidemiology of infectious disease has traditionally occupied much of the time and thought of the Medical Officer of Health. Indeed the recognition of the influence of environmental

conditions upon the spread of such diseases was possibly the main reason for appointing such an officer. Since the days of Duncan and Simon this picture, as so many others, has altered out of all recognition. But it would be wrong to conclude from this that the utmost vigilance is not still required. In some respects the scope of work, as in the case of food infections, is expanding with new knowledge.

35. To assist the Medical Officer of Health in this work many diseases—smallpox, cholera, diphtheria, membranous croup, erysipelas, scarlet fever, and the fevers known as typhus, typhoid, enteric or relapsing—have been made notifiable under the Public Health Act 1936. Other diseases (including scabies and chicken pox) have been added under the same Act with the approval of the Ministry of Health in areas where the local authority have requested it. Many other diseases—measles and whooping cough (Measles and Whooping Cough Regulations, 1940); cerebro-spinal fever and acute poliomyelitis (Cerebro-Spinal Fever and Acute Poliomyelitis Regulations, 1912); acute encephalitis lethargica and acute poliio-encephalitis (Acute Encephalitis Lethargica and Polio-Encephalitis Regulations, 1918 and 1919); Rubella, 1920; ophthalmia neonatorum (Ophthalmia Neonatorum Regulations, 1926, 1928 and 1937); puerperal pyrexia (Puerperal Pyrexia Regulations, 1951); tuberculosis (Tuberculosis Regulation, 1951); malaria, dysentery and acute primary and influenzal pneumonia (Infectious Diseases Regulations, 1927); plague (Notification of Case of Plague (General) Regulations, 1900)—have been made notifiable by regulation from time to time. Food poisoning is notifiable under the Food and Drugs Act, 1938. We regard these notifications as of value as a source of knowledge, as a means of control and also as a valuable link between practitioners and hospitals and the health department. Upon receipt of a notification inquiries may be made, with the assistance of the sanitary inspector and health visitor, with a view to determining the source and preventing the spread of the disease. In view of the exceptional importance to be attached to this statutory notification it is unfortunate that there is no duty placed upon Medical Officers in infectious diseases hospitals to notify disease to the Medical Officer of Health. This no doubt arose from the fact that the Medical Officer of Health was himself in charge of the hospital until the new Act changed this relationship.

36. The Medical Officer of Health should, by training and office, be a specialist in infectious disease and to this end it has for long been customary for those intending to make Public Health a career to secure postgraduate training in infectious diseases hospitals. Moreover, these hospitals have for nearly a century been part of the machinery of preventive medicine and have been within the control of the Medical Officer of Health. This has enabled him to study infectious disease in all its aspects and to maintain a degree of skill which has ensured that general practitioners would look to him for advice. The partnership of the general practitioner and

the Medical Officer of Health has been one of the main reasons for the gradual stamping out of infectious disease from this country. There is now a tendency to exclude the Medical Officer of Health from clinical contact with the patients when admitted to hospital. In many areas specialists in children's diseases and general medicine are taking over the control of this work. The Medical Officer of Health welcomes the possibility of all forms of specialist advice being made available to the infectious patient in hospital but to provide this by the total exclusion of the Medical Officer of Health himself seems to ignore the importance of the community health being protected by Officers with the fullest possible experience. The Ministry of Health should take early steps to prevent the development of a situation in which the Medical Officer of Health will be excluded from the infectious diseases hospital; and to provide for his early training in infectious diseases work to continue. The Medical Officer of Health must continue to have a special knowledge of infectious disease to enable him to act as a first line of defence against their spread.

37. The infectious diseases hospital should be regarded as essential to the protection of community health and means should be sought to create the essential link with the health department which existed before the National Health Service Act. This does not necessarily mean ownership of the infectious diseases hospital by the local authority, although this might be the most effective means of producing the necessary integration. One essential requirement is that cases should be admitted and discharged on the authority of the M.O.H.

38. The present position with regard to the epidemiology of tuberculosis is unsatisfactory. This problem is far from solution. The Medical Officer of Health should be vested with as much authority as possible in order to eradicate this grave evil. The separation of sanatoria from the departments responsible for community health must increase the difficulties in securing that they are used to relieve the strain on the community and to lessen the risks of spreading infection. It would be proper to include the sanatorium within the jurisdiction of the health authority but, should this step not be taken, the admission and discharge of cases must be done in full consultation with the Medical Officer of Health and he should have powers to insist upon admission or retention in some circumstances.

39. What has been said for sanatoria applies with even greater force to mass radiography, which can be most effective where it is organised by the Medical Officer of Health and directed towards the susceptibles in his population. Mass radiography should be placed under the responsibility of the health department.

40. The epidemiology of infectious disease requires expert laboratory facilities. The development of the national Public Health Laboratory Service has done much to make this possible and we welcome its continuance. The Bacteriologist can give

valuable assistance in field work but in general he should not be regarded himself as a basic field worker. The Medical Officer of Health should be the field epidemiologist, calling for expert assistance from the laboratory when circumstances demand. There are however many Research problems which the Bacteriologist may wish to investigate in the field and for which he should be given facilities and help by the Medical Officer of Health.

2. The Personal Health Services.

(A) OF GENERAL APPLICATION.

(1) Health Education.

41. The realisation that the public could do much to prevent disease if they were suitably informed came late in the era of Public Health and even later came the statutory power for local authorities to incur expenditure in health education of the public. The Public Health Act, 1925, section 67, which gave the statutory power has been re-enacted in the Public Health Act, 1936, section 179. The National Health Service Act, 1946, section 28, also enables local health authorities to provide for health education in the exercise of their duties in the prevention of ill-health. This statutory authority, although permissive, is adequate to enable the Medical Officer of Health to develop the work.

42. Enactments do not specifically say that the Medical Officer of Health should be the officer concerned with health education and, although non-medical persons may conveniently take part in health teaching, the overall supervision and direction must be in the hands of the most suitably qualified officer, namely, the M.O.H. Statutes might be more specific on this point.

43. Health education takes many forms. The methods of teaching the public could be divided into three broad classes, to the general public (exhibitions, films, etc.), through organisations (Parent-Teacher Associations, clinics, etc.), and direct to individuals.

44. There is, however, more in health education than imparting it to the public. Material has to be prepared and methods sought. The Medical Officer of Health must be concerned in the subject matter to be presented, for he alone is competent to assess the value of such material and prepare it with the accuracy which is essential. Much of this work can only achieve its full effect when the detailed organisation is undertaken by a specially appointed officer under the direction of the M.O.H.

45. The teaching of health in schools has been admirably discussed in a series of pamphlets produced by the Ministry of Education. Yet the great opportunity presented by a compulsory and universal system of education has never been fully grasped. This deficiency could be made good if the school health staff played a more active part. School doctors and nurses should regard this as one of their most important functions. Discussions with teachers

on what to include in the ordinary school curriculum, should be a regular procedure. In addition doctors and nurses should be prepared to give short talks on aspects of the work which a teacher might not feel qualified to cover.

(2) Care and After-care.

46. Speedy and effective rehabilitation, as one of the principal objects of executive social medicine, is greatly helped by section 28 of the National Health Service Act, which makes "Care and After-care" a statutory duty. This branch of the Medical Officer of Health's work is not primarily concerned with medical treatment but with the socio-medical services, which aim at furnishing the doctor with particulars of the patients' social and personal background, so that by solving difficulties or making adjustments the patient can respond fully to treatment, and later re-establish himself completely.

47. The work of care and after-care has been complicated by the passage of overlapping statutes in relation to the aged, the handicapped and the deprived child, which cannot properly be dissociated from the care and after-care to be provided under the National Health Service Act. This subject is dealt with elsewhere; it would be a great advantage if these parallel branches of social medicine could be integrated under the general direction of the Medical Officer of Health.

48 (i). Care and after-care in relation to hospitals concerns (1) the provision of background reports for those who have entered or are about to enter hospital; (2) the after-care of hospital patients; and (3) the sociological work within the hospital. As to the first, every health department has in its possession, or available to it, a wide range of information which may help hospital staffs, since the whole of the hospital clientele comes from, and goes back to, the community. The environment and personal details known to the maternity and child welfare, school health and mental health sections of the department, are of the first importance. The Medical Officer of Health can mobilise information available from doctors and medical auxiliaries employed by the health department, i.e. school doctors, school dental officers, child guidance staff, sanitary inspectors, home nurses, midwives, health visitors and mental health workers, so that it can supplement the information obtainable from the general practitioners. Such a report from impressions and observations over a continued period is of far greater value to the hospital than that provided by single visits to the community by hospital staffs, which should be discouraged and the information obtained through the M.O.H. in accordance with Circular RHB (50)75.

(ii). When patients fall ill and have to enter hospital the conditions of the home are often at fault and may be revealed for the first time. In the case of infectious disease, notifiable or non-notifiable, if the health department is consulted it can often take

steps to protect the family and the community. The care and after-care of the tuberculous was the earliest example, and the idea of a committee concerned with the welfare of such patients is capable of further application, e.g. the tuberculous can be assisted by rehabilitation in colonies. The Medical Officer of Health can also contribute to the welfare of mothers and babies leaving hospital. In the present shortage of maternity beds it is not uncommon to discharge patients before the 14th day; timely indication to the health department can secure early attendance of a domiciliary midwife. Many babies are born in hospitals and maternity homes because of unsatisfactory home conditions and early consultation with the health department can help to alleviate home conditions prejudicial to health or even life, e.g. in the case of the premature baby. There is the particular problem of the school child, whose rehabilitation is closely related to activities at school. To ensure effective follow up both at home and at school it is essential to have a routine notice of admission to hospital as well as details upon discharge of all school children.

(iii). At the other end of the scale we have the aged, an increasing proportion of our population, in terms of the hospital almost inseparable from the chronic sick. In many cases the health department can help in their return to the community, which often involves considerable difficulty.

(iv). The physically or mentally handicapped child and adult is each a separate problem in social medicine. Those that are "substantially and permanently" handicapped will become the subject of welfare under the National Assistance Act but it is the object of the health department to endeavour to prevent such a state of handicap developing. The general practitioner may not always be concerned but will often be able to help. This is particularly true of the handicapped when it is a question of special schooling, convalescent treatment or reference to the disablement officer of the Ministry of Labour, or of epileptics or mental patients when continuous treatment or attendance at special clinics is required.

(v). There are, over and above all these, those who will return home after illness whom the health department will be able to help by the provision of home nursing, health visiting or home helps.

(vi). Socio-medical work within the hospital itself is the concern of the hospital but it is clearly undesirable to separate it from other aspects. In larger general hospitals it is usual to employ an almoner; she can be helped by background reports obtainable from the health department, whose staff can attend for personal consultation. In smaller hospitals and special hospitals, particularly for the chronic sick and the tuberculous, where there is no almoner, the most practical solution is for the health department to undertake the work through a senior and experienced health visitor. This in fact, takes care and after-care to the bedside.

49 (i). The rehabilitation of the sick in their own homes is of

growing importance. It returns the patient to his own home under the care of his own doctor, saves undue elaboration of institutions, and thus is one of the most effective means of securing economy in our health services. The aid of the Medical Officer of Health and his staff in the rehabilitation of the sick in their own homes can only be effective where there is a close partnership with the general practitioner. In the past there has been rivalry and some misunderstanding between health departments and the general practitioners. But now the work of the health department is increasingly seen as an indispensable aid to the work of the family doctor.

(ii). The health visitor is now regarded as the all-purpose worker in the socio-medical field; acting as an agent of care and after-care (under S.28) and in carrying out her extended function of giving advice in health matters (under S.24), she can be the ally of the general practitioner, dealing with the social circumstances which contribute to illness and interpreting the meaning of the doctor's instructions. There is great scope for development of this work and the time must come when every family doctor will seek such assistance from the health department for his patients nursed at home in much the same way as for patients discharged from hospital.

(iii). The home nurse makes an equal contribution. Here again, the family doctor has much to gain, for it is imperative that he should be relieved as far as possible of routine duties which can be equally well done under his guidance by a nurse.

(iv). The home nurse and the health visitor, working in close partnership, are supported by the home help, who can assist in the management of the home. Without her services the rehabilitation of the sick in their own homes is difficult or even impossible, particularly of the aged sick and in families where there are young children.

50. For all the reasons mentioned in the preceding sections, medicine in the future can gain immeasurably from a development of collaboration between the general practitioner and the Medical Officer of Health and his staff.

51. Whatever precise form the occupational health service may take, it will be essential to relate after-care of the industrial worker to his place in community life; his rehabilitation must be done by the Medical Officer of Health in concert with the factory doctor and the general practitioner. In a separate section on the Industrial Health Service reasons are given why the service would gain greatly from integration with the health department. From the aspect of care and after-care such integration could go far to secure success.

52. Provision for convalescence is an essential part of all care and after-care and particularly for the very young, the school child, the pregnant woman, and its provision should be within the province of the Medical Officer of Health. The development of mother and baby homes is a valuable means of relieving the strain imposed by

the growing family, particularly when housing is inadequate. There is a need for further experimental homes which combine convalescence with training for mothers and babies of problem families. Rest homes for the pregnant woman (mentioned elsewhere) reduces the fatigue which contributes to maternal mortality and morbidity; such rest homes should not be confused with beds for ante-natal care at hospitals, which are a parallel development for caring for women in need of medical treatment. Where continued education of the school child is essential to the rehabilitation, the school for delicate children provides the most ready answer when the period of convalescence is liable to extend beyond a few weeks, and it is advisable to concentrate on acquiring such schools rather than a parallel system of long stay convalescent homes. Convalescence for the adult can effectively build up the strength of the worker and prevent a return of ill-health. The present distinction between the convalescence of hospital patients and of others in need of rest and care is impractical and it is better to regard this function as falling wholly within the preventive field.

(3) Health Centres.

53. The health centre should be developed as one of the pillars of the community health service. As section 21 of the National Health Service Act suggests it should combine the preventive clinics of the health authority with specialist clinics designed to meet specialised problems and with the consulting rooms of the general practitioner. It should thus become the focus of preventive medicine, focusing thought upon prevention and removing the undue emphasis now given to cure in hospitals. It can provide an effective meeting place for the staff of the health department, general practitioners and specialists and cement their relationship in the interests of the community health; it should be promoted by the health authority as a valuable means of safeguarding community health and not simply in terms of convenience to practitioners. If the health service remains administratively divided, this development should remain the responsibility of the health department.

(4) Health Examinations.

54. It is of the highest importance to instil into the minds of the people the value of keeping well, so that their usefulness to themselves their family and their country remains unimpaired. Periodic health examinations, as an extension to the adult of what has been organised within the child welfare and the school health services, might have something to contribute. The extension of this method to the industrial workers is one of the possible advantages which might come from the inclusion of the industrial health service within the scope of the Medical Officer of Health. The time may have come when certain limited trials of this method might be organised in the country and, if so, the work should be under the general direction of the Medical Officer of Health.

(5) Ambulance Service.

55 (i). The ambulance service should not be regarded as an

affair of transport only but as part of a medical service in which care of the patient is of the first importance. The training and supervision of ambulance personnel, the necessary safeguards against infectious disease and the choice of equipment require that control should be in the hands of the Medical Officer of Health. Much of the success of this service depends on the arrangement of medical details in relation to general practitioners and hospitals, which the Medical Officer of Health readily understands.

(ii). There is the further consideration that an ambulance service is costly in money, equipment and man-power and liable to abuse. In the last resort it is essential that the Medical Officer of Health should be in a position to accept or refuse cases for transport. The Medical Officer of Health, as a chief executive officer, should be in a position himself to take up points of difficulty with practitioners, hospitals and lay committees.

(iii). This is a further example of where it would be an advantage for the statute to state definitely that the service should be under the general direction of the Medical Officer of Health.

(B) OF APPLICATION TO SPECIAL GROUPS.

(1) Care of the Mother and Young Child.

56. The preventive care of the mother and her young child, hitherto one of the most successful developments of social medicine, has lost none of its importance to present day society, as is recognised in the National Health Service Act, which makes little alteration in the responsibility of the Medical Officer of Health for this service. It entails ante-natal care, post-natal care, domiciliary midwifery, infant welfare, the care of the unmarried mother and her child, and the day-time care of the child whose mother is at work. Most of this is well known and appreciated and the following paragraphs are concerned only with controversial matters where the needs of this priority group, whose protection is of vital importance to community health, must be emphasised.

57. In a divided health service ante-natal care may be obtained from so many different sources that there is a risk of confusion, which may lead either to overlapping, or to oversight. To avoid this the Medical Officer of Health should continue to co-ordinate the arrangements and to see that every expectant mother is able to receive from some source both (1) supervision and teaching, and (2) medical care.

58 (i). There is a prevailing misunderstanding as to the relative function of a clinic provided by the health department and the care by the family doctor and/or hospital. The clinic can provide continuous supervision and detailed teaching and in this capacity remains a most important institution despite other arrangements for medical care now made available under the Act. Booking a private practitioner or a bed in a hospital does not eliminate or supersede the need for regular supervision and teaching at a clinic.

(ii). Where mothers attend clinics the general practitioner or hospital must be kept informed of all material findings.

(iii). The staffing of such clinics does not seem to present undue difficulty. The use of whole-time doctors who undertake other work in the child health service of the health authority is, in view of the particular purpose of an ante-natal clinic, not nearly so unsatisfactory as some critics suggest, despite the divorce from active midwifery; alternatively, a general practitioner obstetrician can be engaged in areas where conflict with other practitioners in relation to their patients is not likely to occur; or whole-time officers can be appointed to be engaged in the combined duties of ante-natal work in the clinics and obstetrics in the hospital. Any of these three methods can provide persons of mature outlook and some permanency, which is essential to success in the preventive work of an ante-natal clinic; they are superior to an arrangement whereby junior hospital staff carry most of the responsibility.

59 (i). The birth of a baby, as a physiological process, should, where possible, take place in the family home, and it should be one of the objects of the community health service to make this possible. For many years an unsatisfactory environment will make some institutional deliveries essential but we should now be striving not to multiply institutional beds but to make homes fit for babies to be born in. The figure of 50% institutional delivery as recommended in Ministry Circular R.H.B. (51) 74 seems to be reasonable in most areas.

(ii). It follows that full support should be given to the training and practice of domiciliary midwives. Furthermore, in a divided health service domiciliary midwifery should be administered by the Medical Officer of Health; any suggestion that the service would be better conducted by, for example, a regional hospital board (through management committees) seems to us to ignore the fundamentals of the situation.

60 (i). A well organised ante-natal service will reduce to a minimum the occurrence of untoward events and secure that all or most women in need of special care will have been removed to hospital. The fact that such complications occasionally arise at home does not justify the centring of the whole midwifery service upon the hospital.

(ii). It follows that a domiciliary midwifery service should make provision to meet all contingencies. It should include:—

- (a) The provision of special clinics staffed by an obstetric consultant, (in addition to ante-natal clinics for routine supervision and teaching) to which special cases of difficulty can be referred. These clinics should be in centres of population, conveniently situated for the patients.
- (b) The provision of hostels in the form of rest homes for mothers not in need of hospital care, and special provision for the unmarried.

- (c) Every mother should (as now) be able to book a general practitioner to be responsible for her pregnancy, labour and lying-in at home. The general practitioner should undertake full responsibility (assisted by routine supervision and teaching at a clinic); he should arrange for cases of difficulty to be booked for institutional delivery; and be enabled to call in an obstetric specialist or the "flying squad" in case of sudden unforeseen emergency.
- (d) If no doctor has been booked the midwife should be able to call in any general practitioner obstetrician. (In such cases the fee can properly be borne by the community health authority).
- (e) Arrangements for a flying squad to be available to deal with emergencies arising during pregnancy or labour, which have to be dealt with in the patient's own home; the midwife must be in a position to call upon such help as a life-saving measure.

(iii). In view of the importance of domiciliary midwifery to the community health, the Medical Officer of Health is vitally concerned with the standards of medical practice in obstetrics. The urgent need to improve these has justified the creation of a special practitioner (the G.P. obstetrician). To some extent the value of this step has been lost by the fact that no definite standards have been laid down for the recognition of G.P.O.'s. Nevertheless, the step taken is important and, in view of the increase in safety to the mother confined at home, will help to strengthen a domiciliary midwifery service and the centring of midwifery on the home. A reduction in the numbers of G.P. obstetricians would help to make a second tier experienced service; and to secure that an increasing number of ante-natal clinics and maternity homes will fall to his care. Others may wish to see the opposite, i.e. a tendency to raise standards of general practitioner midwifery everywhere so that every family doctor becomes a G.P.O., but the number of domiciliary confinements attended by each must be such that he does not lose his skill.

61. Maternity homes for normal midwifery should not be regarded as hospitals. Their proper function is not to provide expert attention for complicated cases, but to offer to the average mother better facilities for confinement than she would be likely to obtain in her own home. A health authority should be able to provide and staff homes for normal midwifery. Incidentally, the training of Part II midwifery pupils would thus be greatly facilitated.

62. Much that has been said about ante-natal care applies with equal force to post-natal care. Clinics again can be of the greatest use and it is certain that much more can be done in this field. Family planning is an important aspect but in general we think that this work should be organised by a voluntary organisation.

63. The unmarried mother presents a special problem. In such a case the tact of an experienced health visitor or moral welfare worker is invaluable to the Medical Officer of Health in investigating the home conditions and the attitude of the girl's parents, in assessing the need for institutional care and arranging suitable accommodation if required, in weighing up the possibility of the mother being able to support her child, in arranging for assistance of all kinds to be given, in advising adoption in certain cases and outlining the machinery involved.

64. There is much concern that three administrative bodies should now be dealing with maternity. The supreme necessity is not for unified control but for adequate co-ordination. If, however, the former is sought the responsibility should rest with the Medical Officer of Health, who is an experienced administrative officer with sufficient knowledge of obstetrics to know what each worker in the team can give, and an intimate knowledge of the people for whom the service is required. Through his health visitors, midwives and clinics he is in the closest possible touch with the obstetric needs of his area. In a divided health service it would be wrong to achieve unity by transfer of functions for domiciliary midwifery.

65. The important educational service of infant welfare should continue under the Medical Officer of Health. Mothers have to be taught how to keep healthy babies fit and well; also, babies and young children have to be examined from time to time, and advice given, either in clinics or in patients' own homes, when any departure from the normal is observed. Advice on protection against certain infectious diseases (notably diphtheria and smallpox) is essential, and facilities must be made available for immunisation and vaccination. Treatment of illness should not be included but periodic medical examinations should be arranged, and certain foodstuffs be provided either free of cost or at reduced price. The priority dental services to these groups must be extended.

Specialist provision must be made for the care of premature babies in their own homes. For this incubators, nursing facilities, and expert advice may be required. In addition some institutional accommodation is needed, but should only be provided after close consultation between the local health centre and hospital authority.

66. Duties imposed under the Nurseries and Child Minders Regulation Act, 1948, to keep registers of nurseries and child minders and to make arrangements for all work in this connection to be supervised are a valuable advance. There is the anomaly that the provisions of the Act only apply where two or more children are placed with foster parents.

67. In modern society day nurseries are a necessary protection for infant life and health and it is proper that they should be administered by the M.O.H. They must be regarded as fundamentally for health purposes and admission should be arranged on those grounds. Day nurseries have proved to be of inestimable value for children

whose parents, through poverty or for other reasons, are unable to give them the care and sustenance they require.

(2) The care of the School Child.

68. The school health service is a growing point of social medicine. When it began in the early years of the century it was concerned mainly with the ascertainment of defects. This is still an important function aimed at prevention and rehabilitation. But the service seeks now to do more; it seeks to link the findings at school with the remedy of social conditions which contribute to departures from health and it seeks to teach the meaning of positive health. This important branch of social medicine has fully justified its close relationship with the school itself and especially with the teachers, and this relationship must be retained. The work must take place in close physical relationship to the schools and in school time, with teacher, doctor and nurse working together in guiding parents and children. The object of the service is to maintain the health of the school population at the highest level, so that all children can derive the maximum benefit from the education provided for them and ultimately be able to leave school mentally and physically fit to play their full part in the community. The service should be viewed as an integral part of the health of the nation and as an essential one if the progress made in the last forty years is to be maintained. Since the health of the school child is dependent, not only upon the school, but also upon the health and social standards of his community, his interests can best be served where the Medical Officer of Health and School Medical Officer are the same person. The system in several large authorities by which the School Health Service is administered by the Health Committee on behalf of the Education Committee should be generally adopted.

69. The supervision of the child's health and progress in school should be comprehensive and continuous, with emphasis on positive health and well-being. The school medical officer must have on his staff school doctors who are expert in the field of nutrition, epidemiology, physical medicine, and social and mental hygiene, and who have a knowledge of educational matters so that they can advise what special facilities are required for the various types of handicapped child. His nursing staff should have a similar outlook, and be trained to work in the closest co-operation with both medical and educational staffs; be known to the parents as the friend of the family and familiar with the child's environment both at home and in school. The same doctors and nurses should work in both the school health and child welfare services to ensure continuity of care and a link between home and school. Continuous supervision of health in schools can best be maintained by the school nurse. Three or four complete medical examinations during school life, with re-examinations and special examinations (and certain additional examinations during the secondary school life) should be generally regarded as adequate, special inspections being arranged as needed, and the school doctor should exercise a continuous

group supervision over the children in his charge. Furthermore the school nurse, by regular visits, can secure that nothing of importance is overlooked. She should pay particular regard to the detection of handicaps; the early defects of vision and hearing, abnormalities of behaviour, educational subnormality, and other departures from normal are well within her capacity. Her relationship with teachers and parents should be close and friendly.

70. The relationship with the family doctor is another of the important factors in the success of the school health service. Much is said about the need for general practitioners themselves to undertake medical inspections and how the use of whole-time doctors on the staff of the school medical officer will impair the family doctor relationship. However, the need for each school to have its own doctor to advise and guide on all matters of health within the school and the need for work to be done in fixed hours and on the school premises (in properly equipped examination rooms) make it difficult for general practitioners to engage in the work. Where they agree to participate they should be prepared to give a definite proportion of their time without conflicting engagements and to take on a fixed range of schools without making distinctions in the event of schools under their care containing children under the family care of other general practitioners. Examinations cannot be carried out satisfactorily at either a doctor's surgery or at a health centre, as all the important people who feature in the training and life of the child cannot be present at the same time except at the school, which is in effect the workplace and club of the child and the place where he is most at ease outside his own home. The use of whole-time staff has many advantages and it is a practical arrangement. The relationship with the family doctor can be cemented in the interests of the child and the family by personal contact, particularly by the health visitor and school nurse and the school medical officer. The family doctor must be informed of all matters of significance and his consent should be received before the reference of a child to specialist clinics.

71. Specialist clinics such as those for paediatrics, orthopaedics, child guidance, ophthalmology, and ear, nose and throat work should be part of the school health service. The clinic itself should be attended by a school nurse-health visitor in order to provide background histories and to convey information back to the home and school. The arrangements of the clinic should be administered by the school medical officer and the records should be part of the school health record. Clinics should be conducted in an atmosphere of health, and in general, dissociated from out-patient departments. Specialists engaged in school health work should feel themselves as part of a preventive service with responsibilities towards the school doctors and nurses. This is particularly true of the paediatrician, who can contribute greatly to the maintenance of high standards in the service. A paediatrician should, in fact, be given a position as general clinical adviser to the school medical officer.

72. While the school health service must be conducted as part of the educational system, the other fundamental need is that it must form part of an integrated service to maintain community health. Should the administration of a community health service be independent of the educational service, the school health service must remain within the community health service and the integration with the schools will then have to be secured by supplementary means. We do not regard this as an insuperable difficulty.

73. Much of the work of a school health service is concerned with handicapped children, for whom regulations under the Education Act prescribe eleven categories. The successful ascertainment and placement of handicapped pupils require a prolonged study of the problems involved and a knowledge of educational as well as medical principles. The value of the Handicapped Pupils Regulations is directly related to the professional skill exercised in their administration. The scrutiny of the register and the review of defects in school children must be persistently and carefully carried out in the closest collaboration with the education department. The full investigation of cases will also bring the school doctor into close contact with the family doctor on such problems as the treatment and stabilisation of epilepsy, the control of diabetes, the suitable placing of the delicate, and the management of the mal-adjusted where home conditions and influences are at fault. Special institutions for handicapped children, such as hostels for the mal-adjusted, schools for delicate, physically handicapped and educationally subnormal should (except for the orthopaedic and the rheumatic hospital schools, which must be part of a hospital system) be regarded as within the educational system. The school medical officer and his staff will act as advisors, being intimately concerned with the admission and discharge of children and providing expert professional advice in the medical aspects of the conduct of the school.

74. The school health record is of importance throughout life and particularly at school leaving, when confidential advice has to be given to juvenile employment officers. The record should be complete; this means that hospitals should always give information of the admission and treatment of school children to the school medical officer; also that the family doctor should keep the school medical officer informed of major events in the child's life.

75. The care and after-care of school children has been dealt with as part of a separate section. Suffice it to say here that a close working relationship with hospitals and general practitioners is essential to secure that medical findings are translated to the child's advantage in his education. It is essential for the school medical officer to know of the admission of a child to hospital and, where possible, the school nurse can with advantage visit the child in hospital. Where a "school in hospital" scheme is envisaged it should be arranged in consultation with the S.M.O.

76. The subject of health education in schools is likewise included as part of a separate section of Health Education of all classes.

77. What has been said of medical work in schools applies with equal force to dentistry. The school dental service must be preventive in outlook. Routine inspection and treatment of teeth should aim at securing a healthy mouth for the adolescent and adult. It must be conducted as part of the school system with the sympathy, understanding and collaboration of the teaching staff. It would be a disadvantage to substitute any form of dental care which, by its separation from the schools, limited its preventive influence. In the main, this means that school dental officers should be employed whole-time on the staff of the school medical officer, with the assistance of a principal school dental officer to co-ordinate the service and maintain high professional standards. The advantage of maintaining dental officers with a preventive outlook with an attachment to the special form of work with children, which requires patience and leisure, is inestimable. The school dental service should have included within it a branch of orthodontics employing specialist officers in this work.

78. Child guidance requires the services, on the staff of the school medical officer, of a child psychiatrist and psychiatric social workers, with the assistance of a psychologist; the latter can be on the staff of the school medical officer or, where engaged in educational psychology, may be seconded to the child guidance work from the staff of the education officer. Child guidance centres must be regarded as a part of a wider system for guiding parents in child management, in which school teachers, school nurse-health visitors and school doctors must play their part. The centres should be concerned with children who have been referred through the school medical officer. Hostels for maladjusted children should be under the clinical guidance of the child psychiatrist. A child guidance service must cover the whole child population, including those of pre-school age.

79. The design and siting of school buildings is left very much to the discretion of the architect and the medical officer is at present usually consulted only on minor matters about medical inspection rooms, rest rooms, etc. He should have very much more say in the siting and design of school buildings, furniture and equipment. In the past classroom design and equipment left a great deal to be desired and we are still suffering from it and are likely to continue to do so for many years to come. Siting, to a great extent depends on the policy of the Education Committee on the size and type of schools needed; nevertheless, the opinion of the Medical Officer of Health should be sought on the health aspect of sites. Also liaison with the local health authority will decide future planning of multi-clinics and health centres, etc., in relation to the school population.

80. Speech defects are an important contribution to maladjustment and their remedy, as now, should be the concern of the school

health service. The study of the causation of speech defects is essentially medical, and treatment should be carried out by speech therapists under the supervision of the School Medical Officer. In general, this is the most satisfactory manner to employ the present limited number of specialists and is preferable to treatment in out-patient departments of hospitals.

(3) The Care of the Deprived Child and the Problem Family.

81. The break-up of the family involves problems of adoption, the fostering of children for gain, boarding out, children's homes, residential nurseries—both short-stay and long-stay, remand homes and approved schools. The children involved may be the illegitimate, the destitute and abandoned, those taken into care and protection either by the authority acting on its own initiative or at the order of magistrates, delinquent children, those whose parents pay others to care for them, and those who need to be removed temporarily owing to illness or other adverse circumstances at home. These children are now all subject to the Children Act, 1948, which is the responsibility of the Home Office and Children's Committees of the County Councils and County Borough Councils. The Medical Officer of Health has been given no more than an advisory function concerning even medical matters. It is important not to deprive "the deprived child" of access to the normal health services.

82. The integration of these aspects of one important subject, previously dealt with mainly by the poor law, has been a step in the right direction, but the separation from the health department is a grave disadvantage. Community health can be achieved only upon the basis of the happy family. The break-up of the family is, therefore, of the first importance to the Medical Officer of Health. It should be his object to prevent this happening and, when this has occurred, to lessen the ill-effects to the individuals and to the community health. Prevention and cure must here go hand in hand. The work of the Children Act should be re-integrated with the rest of community health matters. The Children's Officer, who has so much to offer in ensuring individual concern for the details of each child, should of course be retained but should work on the staff of the Medical Officer of Health.

83. The visiting of children in foster homes, boarding-out supervision, the selection of suitable homes and the visiting and examination of children placed with a view to adoption, would best be done by health visitors. This is work for which the health visitor has long been trained and accustomed. She has the most favourable opportunities of finding the best type of foster parent; with her nursing training (and with the further training suggested in paragraph 18) she should be particularly well qualified to give advice on the welfare and upbringing of the foster child. This method ensures that the child gets the same care as the more fortunate children living in a normal family. The Children's Officer can call for special reports and can make visits. The Health Visitor is known in the district and probably in the foster parents' home; her presence need occasion no

special comment and avoids creating the impression that there is something exceptional or abnormal about the new child. The use of health visitors, particularly in country districts is more economical. The health visitor has an unrivalled knowledge of, and access to, information regarding the circumstances and social conditions of the families in her area. This is particularly important in cases of adoption.

84 (i). The care of children in residential nurseries and in children's homes introduces problems for which medical knowledge is essential. The short-stay nursery fulfils an important need, relieving the anxiety of the mother for her children whilst she is temporarily unable to care for them at home, owing possibly to a further confinement, sudden attack of illness, or surgical emergency. With frequent admissions and discharges these nurseries carry a high risk of infection. Particular care must be taken to guard against the introduction of infections with the new entrants. Regular medical supervision of the children is required, especially for those under the age of two years. A proper diet must be given and most stringent hygienic measures constantly enforced to prevent the occurrence of epidemics, especially of the enteritis group. The choice and planning of the nursery itself, the provision of sufficient floor space per child, of isolation accommodation and a sick bay, and the proper facilities of washing accommodation and lavatories all fall in the province of the Medical Officer of Health.

(ii). The children in these nurseries, away from their homes for possibly a few weeks only, cannot properly be said to fall into the category of children deprived of the advantages of a normal home. In any event the health aspect of such services is so important that the administration of such nurseries should be under the direct control of the Medical Officer of Health.

(iii). The long-stay nursery supplies a different need but introduces problems of a similar character and it should be under the direction of the Medical Officer of Health. For children under five and especially for babies, adequate medical and hygienic supervision are imperative if disasters are to be avoided.

(iv). In both short-stay and long-stay nurseries the selection of cases must be dependant upon the social conditions within the community. They must be regarded as primarily concerned with supporting community health and the decision to admit or discharge should rest with the Medical Officer of Health.

85. The object of the care of children in childrens' nurseries and in homes must be to reconstitute the family and, where this is impossible, to prevent maladjustment. The work involved is clearly related to that of the school medical officer in his relationship with handicapped children and it would be facilitated by placing it under the general direction of the Medical Officer of Health.

86. In remand homes the Medical Officer of Health has a valuable part to play in advising on the psychological and physical

problems of individuals and also the hygienic running of the home.

87. Nothing illustrates the need for integration more clearly than the relationship between the problem family and the child deprived of a normal home life. A large proportion of such children come from problem families. There is no exact information of the number of problem families; according to the evidence of pilot surveys some 80,000 exist. These may involve between 300,000 and 400,000 children, at least twice the total children recorded by the Curtis Committee as "deprived of a normal home."

The ascertainment and rehabilitation of problem families must be made the responsibility of an authority able to bring to bear a full range of preventive measures, i.e. the health department. Ascertainment, preceding any effective remedial action, will be best done using the information available from health staffs. Many of the services of the health department already have much experience of the problem family; the sanitary inspector, the school health service, the health visitor, home nurse, home help, the mental health social worker, are all deeply involved. Valuable research on this subject has been done by Medical Officers of Health and their staffs. It would be a grave disadvantage to separate this branch of social medicine from the parent stem, not only because the problem is essentially one of health, but because it would result in a multiplication of visitors and administrative staff. The Minister is empowered to prescribe for the ascertainment and rehabilitation of the problem family under section 28 of the National Health Service Act.

(4) The care of the adolescent and adult in industry.
(Occupational health).

88. Viewed from a national angle the absence of care for the worker is a notable gap in our personal health services. Existing services for groups of susceptible persons, whose good health is essential to the preservation of community health, may be said to cover the period from before birth to school-leaving age, and again under recent legislation the period after useful employment has ceased. In the intervening period, the span of the normal working life, certain special groups such as the expectant mother, the tuberculous, the handicapped, and those with venereal disease are cared for, but the industrial worker is conspicuous by the absence of adequate provision although there are services to protect his home environment, his food and in some measure his recreation. It is fundamentally unsound that the period of busy working years, with its strain and uncertainty, which forms the major part of the life span, should not be completely covered. Apart from the decline in efficiency of the worker which results from his neglect, the nation has to deal with a vast amount of chronic illness which could be prevented. The gap should be closed.

89. Existing statutes give the Medical Officer of Health only limited powers to prevent illness and promote health in the places

where men and women spend their working hours. The Factories Act, 1937, permits the enforcement of provisions as to sanitary conveniences in all factories and as to other environment factors (cleanliness, overcrowding, temperature, ventilation, drainage of floors) in factories that do not use mechanical power; it also gives powers to supervise "outworkers." There are further limited powers over environmental conditions in the Public Health Act, 1936. Within these limited powers the Medical Officer of Health has effected considerable improvements but he is circumvented by having inadequate powers over the environments and even more by having no responsibilities at all for personal health.

90. Much more is required to protect community health from the hazards associated with a high degree of industrialisation. All this should be under the general direction of the Medical Officer of Health so as to ensure that it is closely related to other work in the protection of community health. Although the Medical Officer of Health could exercise this general direction in different administrative arrangements, this is undoubtedly an instance of where, in a divided health service, the balance of advantage lies in placing the service under the community health authority.

91. The total number of factories (broadly, places where things are made or mended) in Great Britain is 243,769; only 4,499 had (in May, 1949) any kind of medical service. Four-fifths of all factories employ fewer than 26 workers and there are, in addition, a great number of small offices, shops and restaurants not covered by the Factories Acts. In general all these small places of work are totally lacking in any service to prevent illness and promote health; yet it is here that so much harm to health may be done, and the health of our nation is endangered. The chief object of an occupational health service should be to concentrate upon filling up gaps and it is upon this large number of small undertakings that the service should concentrate.

92. The objection that workers may regard with suspicion a service provided by the management, although no doubt valid, has not the same significance in large firms as in the small ones. Some large firms now provide an excellent service (there are 240 doctors employed whole time and 2,800 part time, excluding the nationalised industries). Such firms, and others wishing to do the same, should operate their own service with advice and guidance from the M.O.H. where necessary.

93. The broad outlines of an occupational health service are given under the following headings:—

- (i) A comprehensive service for environmental conditions, i.e. factory design, heating, lighting, sanitation and the conditions of work in relation to the nature of the industry.
- (ii) Understanding of the emotional difficulties of young adults.
- (iii) Continuous health supervision of a preventive character, intended to detect the first signs of disease (including psycho-

logical disorders) to safeguard the worker from infection and to emphasise the need for positive health.

- (iv) A service to advise on job analysis, including "pre-employment" and "change of employment."
- (v) A service for health education, with particular reference to the nature of the work.
- (vi) A service for special medical advice and research on hazardous occupations.
- (vii) A service for rehabilitation after illness and accidents.
- (viii) The provision of welfare services.

94. The first essential is to secure that powers are available locally to control the whole of the environment of industry. Local problems can best be solved by local people. Factory inspectors employed by the central authority can be of great value but the immediate attack on the problem should be local. The Medical Officer of Health should have on his staff one or more industrial doctors (i.e. with special experience), who might exercise an overall supervision of all workplaces, including offices and restaurants.

Day-to-day supervision can best be secured by frequent visits of such a medical officer to the various departments of a factory, so that he can observe the operatives at work. For this general practitioners with the necessary training might be employed in defined areas. The work of supervision would be most effective in conjunction with the same sanitary inspector who is responsible for other environmental work. The sanitary inspector, as a member of the Health Department team, should exercise continuous supervision.

95. Continuous health supervision can best be achieved by routine medical inspections. It would be a service closely allied to what is done in schools. (Large firms employing whole time staff should be encouraged to adopt the same procedure). In this work the general practitioner should have the assistance of the health visitor, who, just as the sanitary inspector exercises a continuous supervision over industrial environment, can do the same for personal health. She can bring to the notice of the doctor all departures from normal; promote health discussions with the workers and the management; and relate the personal health factors at the place of work with the social and health factors at home. The health visitor working with the industrial medical officer, should be a member of the health department and, where appropriate, engaged in the full range of health visiting duties elsewhere at home and at school. This would not often be possible for the large factories, where whole-time staff would be fully occupied but, as already indicated, it is the very large number of small factories and workshops which present the major hazard to community health.

This supervision of personal health would be an extension of the service which already exists, where the Medical Officer of Health advises on the health and welfare of municipal employees super-

vising the sick leave and superannuation examinations. It is a short and logical step from this to a service for all workers using where appropriate the services of general practitioners.

96. Pre-employment advice, which mainly concerns the child leaving school and the adolescent trying, by changing employment, to find his most congenial work, cannot be wholly effective unless it is integrated with the work of the School Health Service. The following quotation from 'School and Life' is appropriate:—

“ In order that the examination of fitness to enter industry should take its proper place in the health service, the statutory examination now carried out by the factory surgeon for certain employments should be transferred to the School Health Service, which will of course be extended to the county colleges as they are established. The school medical officer engaged on such work must have special knowledge of factory work and factory conditions . . . ”

If general practitioners undertake this work, they should be given opportunities of seeing the School Health Service records (with the permission of the parent) and of discussing the case with the school medical officer.

97. The need for the development of health education, with a health education officer under the general direction of the Medical Officer of Health, has been discussed elsewhere. Such a service could conveniently and economically be extended to cover industrial life. Much health education is common to all walks of life and this could be supplemented by advice from the medical officers and health visitors working in industry who would know the particular hazards.

98. In para. 94 reference has been made to the specially qualified industrial medical officers to be appointed. Part of their work should be to study the industrial hazards of the area and to advise the Medical Officer of Health. There would be considerable advantage in bringing this work, now undertaken by a central government department, to a local level.

99. Rehabilitation of the worker after injury and sickness will be most effective in proportion as it is integrated with other services for care and after-care. It would be wrong to attempt to establish a new service unrelated to that which is now growing up. The industrial medical officer would be an impartial investigator with access via the Medical Officer of Health to all departments and could use the close liaison which exists for other forms of care and after-care with hospitals and out-patient clinics. A new route would be open to the general practitioner for solving his patients' medical and social problems via the services of the health department; this would be facilitated by the employment of the part-time general practitioner with a special interest in industrial health. He could recommend and support applications for the ready provision of such services as home helps and home nursing for the sick, domiciliary midwifery, the assistance of health visitors and other social and welfare workers for

the ageing and infirm, and the help of the mental health service in solving the many forms of mental ill-health to which the stresses and strains of industrial life contribute—in fact, for every contingency not clearly a hospital problem. The care and after-care made possible under section 28 of the National Health Service Act would thus be extended to the industrial worker.

100. The developments in social welfare under the National Assistance Act, should be made available to the worker. Social clubs, recreational facilities, canteens and other activities, can contribute greatly to the health of the worker. The Medical Officer of Health should be supported in promoting this side of the work by a welfare officer, who might combine it with other welfare activities.

101. Thus, the Medical Officer of Health will best promote the health of the worker in industry with the aid of an industrial health team; the specially qualified industrial medical officer, the general practitioner giving part-time service to a defined area, the health visitor, the sanitary inspector and the welfare officer.

102. In planning an occupational health service on a national basis heed must be taken of the number of doctors available to take part in the scheme. There are now, and will be for a long time, too few industrially trained medical officers to provide a full time service for all industrial establishments in the country, even if several factories combine to employ a full time doctor. One or two whole time medical officers could, as a first step, survey the area of the community health authority; medical staff could then be completed by the appointment of part time general practitioners. Furthermore, it would be an economy to make use of the community health department as a basic administrative machine.

103. The Society of Medical Officers of Health has urged for many years that all central government activities in connection with health and disease should be concentrated in one department, the Ministry of Health. This applies equally to industrial health and should include the employment, if required, of central lay and medical inspectors. By this means integration of occupational health with the National Health Service can be best made effective. Supervision of occupational health by the central department should be general, as in other aspects of community health work, and not detailed.

104. The principles governing occupational health are the same as those for preventive and social medicine in other aspects, except in so far as certain occupations have special hazards. The training and qualifications of the Medical Officer of Health, the health visitor and the sanitary inspector should therefore be made adequate for this work. For the whole-time industrial medical officer, a specialist knowledge of industrial hazards must be gained, preferably as a selective subject in the normal D.P.H. For the general practitioner doing part-time work, short courses lasting six weeks (or the equivalent) should be instituted.

(5) The Care of the Mentally Ill and the Mental Defective.

105. Mental health is a subject of vital concern, and in so far as it concerns the community as well as the individual it must be regarded as within the sphere of the Medical Officer of Health.

106. The statutory authority of section 51 of the National Health Service Act, which gives the Medical Officer of Health powers under the Lunacy and Mental Treatment and Mental Deficiency Acts, and section 28, which extends prevention, care and after-care to include illness and mental defectiveness, taken together, are adequate for the development of a complete mental health service.

107. The work of prevention and rehabilitation falls naturally into three sections, concerned with mental deficiency, with lunacy, and with the psychoneuroses; a fourth section, child guidance, although closely related to mental deficiency, lunacy and psychoneurosis, is provided under the Education Act, 1944. One of the problems facing the Medical Officer of Health is how far and in what manner to integrate these varied aspects of mental disorder.

108. Mental Health services, like all other community health problems constitute a team operation. While the Medical Officer of Health must himself be in charge of the operations for protecting the community against mental ill-health, he will need the support of experts in different aspects of the work. He will need in varying degree the services of psychiatrists, psychologists, psychiatric-social workers and welfare officers. All these workers should co-operate in regular case conferences.

109. Advice and guidance in special problems from psychiatrists is of the utmost importance. Whether given by one psychiatrist to cover the whole field or by two or more psychiatrists to deal with the separate problems of mental deficiency, lunacy, child guidance, and psychoneurosis; the tendency is now to separate the various branches of the work. Whichever course is adopted it is essential that the psychiatrist shall hold a definite appointment on the staff of the Medical Officer of Health. As long as the National Health Service administration continues to be divided between various bodies it is an advantage for psychiatrists in mental deficiency, lunacy and psychoneurosis to be shared with the hospital authority, since this step helps to integrate the service.

110 (i). Mental deficiency is essentially work for which the Medical Officer of Health should be responsible in view of the great importance of this condition to the health of the community. At least 4.6 per 1,000 of the population are mentally defective within the meaning of the M.D. Acts. About 10% of school children are dull or backward. These figures are very alarming, but they are also illuminating and germane; they are an indication of the fact that this immense problem bristles with difficulties.

(ii). Mental deficiency is distinct from all other mental health

work; so much so that many would regard this subject as falling more correctly within the sphere of the handicapped.

(iii). The ascertainment of defectives is the more valuable as it takes place in early years of life. The Medical Officer of Health, as School Medical Officer, should try to secure that all appropriate cases in school children should be notified to the Mental Health Committee before school leaving age. This is particularly important for some who are now classed as educationally sub-normal and who remain under the Education Committee until the end of school life. This close relationship of the mental deficiency service and the school health service should be fostered in every possible way; where appropriate a medical officer on the staff of the Medical Officer of Health, to supervise the conduct of the school health service, can himself be in a position of responsibility towards the mental deficiency service, and no doubt other ways can be found to cement the relationship.

(iv). The utmost importance should be attached to the task of providing suitable supervision for all defectives. Many high grade defectives are capable of doing fairly good work provided this is of a routine and stereotyped nature and provided the supervision is adequate. The institutions are full, the number of cases of amentia being brought to notice is increasing and more home supervision will be required in the future.

(v). One problem to be faced is how best to conduct the social work of mental deficiency in order to minimise the overlap with health visiting and unnecessary visitation. Here, as elsewhere, the most practical step appears to be the use of the health visitor for day to day matters—as a basic all-purpose visitor in health matters—with the employment of specialists in forms of social work for which special training and knowledge are required; in this case home teachers for the teaching of defectives in the home.

(vi). Statutory supervision and guardianship are valuable measures, both in need of further study and development. In the circumstances now existing that National Boards of Insurance and Assistance are able to lessen materially the need for parents of mental defectives to seek financial aid from the health authority, it is important to secure that guardianship is not impaired by loss of the control which the payment of money provides. It is now difficult to provide suitable guardians owing to a reluctance to comply with somewhat onerous regulations.

(vii). Occupation centres are of the greatest value in acting as training centres for mental defectives but they cannot in all cases be regarded as substitutes for institutional accommodation.

(viii). The institution is, of course, only supplemental to the general care of the mental defective in the community and in view of the intimate relationship which it bears to all other forms of care the work of the colony must be closely integrated with other services for the care of the defective. In an administratively divided health

service arrangements must be made to give the Medical Officer of Health such a relationship over the mental deficiency colony as will enable this to be achieved.

(ix). The placing of a mental defective in an institution or under guardianship requires the services of a petitioning officer. This work can be done effectively by a lay person with special knowledge of the administrative and legal aspects of mental deficiency.

111 (i). Over 40% of the beds in our hospitals are occupied by mental patients and of all patients 30% have some psychiatric contribution to their illness. The same is probably true of patients seeking advice from their own doctors and of those who consult the medical officer in industry. About a third of all medical discharges from the Army are on psychiatric grounds. Departures from the normal state of mind are indeed a most prevalent cause or contributory factor in sickness. This is a grave menace to community health and offers a challenge to the Medical Officer of Health.

(ii). Of psychiatric conditions the largest group is by far the psychoneuroses, probably second only to the common cold in frequency of occurrence. The reaction to persons and circumstances which developed and became fixed in childhood often appear to be at the root of defective behaviour in adult life. If this is so, the foundation of preventive mental health work within these groups rests on the development of healthy patterns of reaction in childhood training. A great deal in the way of prevention can be done through education of parents in how to train children.

(iii). The success of any preventive work will depend largely upon early diagnosis, again best achieved by the early reference of cases to psychiatric clinics. The person who is best able to detect early departures from normal will be one who makes visits to the homes of the people upon a variety of health matters. The family doctor is, of course, in a good position but he will need to be ably supported by the health visitor (whose training should be strengthened accordingly). The health visitor with an interest and aptitude for mental health problems should be capable of undertaking much of the ground work of mental health.

(iv). There is a need to experiment with centres for advising those with mental worries, entirely dissociated from the atmosphere of a hospital or clinic. "Office" consultation of this character may be conducted by a medical officer or a psychiatric social worker, who would need to refer the small proportion of serious disorders to a psychiatrist.

(v). For the full work of rehabilitation the Medical Officer of Health must be supported by psychiatric social workers. (These special workers are in short supply and may not be available in sufficient numbers for many years). The discharge of patients (who are not dangerous to themselves or others) from mental hospitals (under S.72 of the Lunacy Act) to the care of relations is now more frequently undertaken and this in itself calls for more

efficient therapeutic after-care. The psychiatric social worker will do her best work outside hospital and in the community but she can combine with this work in a mental hospital and its allied psychiatric clinics. She should also be available to assist general practitioners.

(vi). Certain aspects of care and after-care in mental health work, such as background reports and follow-up, can be done by less qualified persons, e.g. mental health workers, who combine this limited range of work in lunacy with duties towards mental defectives. In general, the use of unqualified persons in mental health work of any degree of importance should not be encouraged. The use of health visitors in the ground work, as distinct from that requiring the full training of a psychiatric social worker, is a sound development. This has the advantage of helping to unite physical and mental health social work, to lessen the variety and number of visitors to the home, and to emphasise the health visitors part in preventing ill-health. Their training should be appropriately adjusted.

(vii). The welfare of the mentally ill is in need of development on parallel lines to those of other handicapped persons, i.e. through social club, recreation and occupational therapy. Such services may call for the assistance of a welfare officer, who should be on the staff of the Medical Officer of Health. It would be wrong to separate the social welfare of the mentally ill from the rest of the service for mental health. Sections 51 and 28 of the National Health Service Act contain sufficient powers for conducting the work without recourse to the National Assistance Act.

(viii). The admission of the mentally ill to hospital requires the use of a specially trained officer—usually the authorised officer on the staff of the Medical Officer of Health. The work of an authorised officer can also be combined with welfare work. The welfare work can be undertaken both in lunacy and in other forms required by the National Assistance Act.

(6) The Care of the Aged.

112. Ageing is inevitable; the problem is to postpone the physical and mental deterioration which so frequently accompanies it. More than one third of the men and women of working age in Great Britain are over the age of 40; the proportion at the end of this century might well be more than 50%. There were over five million people over 65 in 1947; these numbers are expected to increase to 7.3 million during the next 30 years. This is, therefore, a problem of considerable extent and complexity. Unless there is a steady and marked improvement in their health and physique much of the benefit normally derived from technical progress will be dissipated; instead of increasing output per head, more and more potential producers will be engaged in caring for the aged. The object should be to enable the aged at least to care for themselves.

113. Although the precipitating factor which brings an aged person to the notice of the local health authority is frequently not

medical but social or economic, there is nearly always an element of failing health which eventually determines the treatment and disposal of the case. In support of this the following observations are put forward:—

The incidence of acute and chronic illness is much higher among the aged than in the lower age groups:—

- (i) One third of all old people fall ill every year and need the services of a doctor.
- (ii) The proportion of domiciliary medical visits to those over 65 to visits to those under 65 is 6 to 2.7.
- (iii) The incidence of degenerative diseases in those over 65 is 84 per 1,000.
- (iv) Only a small proportion of the sick aged reach hospital. The vast majority have to be dealt with by domiciliary services.
- (v) With modern rehabilitation therapy about 50% of those admitted to hospital can be discharged to suitable homes or hostels where they require continued medical supervision.

114. Thus the maintenance of health in the aged is obviously a problem of medical welfare. As the Webbs wrote in the Poor Law Minority Report 1905-1909—"Just as that Authority already exercises what is, in effect, a kind of general guardianship over infants in order to be able to step in where there is neglect, so it must exercise a similar guardianship over the citizen falling into second childhood. By the staff of Health Visitors and Sanitary Inspectors, daily going their rounds, the Public Health Authority will become aware of cases in which helpless deserving aged, notwithstanding their little pensions, are suffering from neglect or lack of care." More recently it has been said—"The problem (of the aged) can only be met by a combination of preventive and therapeutic measures with the emphasis on the former. It is a typical example of 'social' medicine and requires the administration of doctors who can see all its facets and are sufficiently interested and experienced to persuade others to do their share." The services for the care of the aged should be under the general direction of the Medical Officer of Health.

115. The social work involved cannot be separated from that in other spheres of the department's work; it entails the full use of the health visitor, who can give to it a combination of health teaching and concern for social factors. The suggestion made in the Poor Law Minority Report that the health departments should exercise a general guardianship over the aged is fundamentally sound. They should survey their areas and know where there are aged persons living in bad conditions and likely to need guidance.

116. One of the important functions of health departments should be that of keeping the aged from falling into such a state that they require institutional care either in institutions for the chronic sick or in homes for the aged. In particular, health departments

must ensure that the most appropriate cases are admitted to the limited accommodation in old folk's homes and in institutions for the chronic sick. In a divided health service the hospital authority should rely upon the health department for advice on applications for admission of chronic sick and on their discharge to the community. This can be conveniently arranged by attaching a senior health visitor from the health department to each institution for the chronic sick, who would work as the right hand of the proposed rehabilitation officer.

117. Parallel with the increase in the aged is the natural increase in the number of chronic sick. For these, the former absolute right to admission to an institution has now disappeared. The increasing need has also coincided with a tendency to reduce accommodation for the chronic sick as an outcome of improvements in arrangements for the acute sick. This is of concern to the preservation of community health. There is no clear dividing line between infirmity and chronic sickness and many chronic sick are not in need of full hospital care. Among much else consideration should be given to making the health authority, rather than a separate Welfare Authority, responsible for providing accommodation of a hostel character for those chronic sick not in need of full hospital care—a parallel form of institution to the old folk's home.

118. There are many things to be done for the welfare of the aged which can supplement the measures of social care outlined above; home helps, chiropody, etc., the organisation of clubs and other social activities, handicrafts and meals on wheels, are examples. This work calls for the use of trained welfare officers, who should form part of the community health team. It is undesirable to separate this work from the rest of social medicine for the aged and chronic sick and welfare work under the National Assistance Act should be the responsibility of Health Departments.

119. Much more needs to be known about the causes of degenerative diseases. Social medicine can make a great contribution to the study of factors leading to physical degeneration and by linking this with the rehabilitation of the chronic sick. The epidemiology of degenerative disease, or coronary disease, of arterio-sclerosis, of the rheumatic affections, call for intensive study by all health departments.

(7) The Care of the Handicapped.

120. The arguments adduced in relation to the aged for placing this work under the general direction of the Medical Officer of Health apply with equal force to the substantially and permanently handicapped, which include those suffering from blindness and deafness (congenital or acquired at any age); those suffering from congenital defects of other organs; epileptics; spastics; and those crippled by accident or disease. In other words people of all ages suffering from a wide variety of substantial and permanent defects are involved. Each case may require the advice of an educationist,

a psychologist, a social worker or one concerned with placement in industry but they all require medical supervision. Where so many agencies may be concerned with one case, the responsibilities should be unequivocally laid upon one person. We consider that the Medical Officer of Health's professional qualifications and experience and his position in relation to the patient and the other agencies which may be concerned, make him the obvious choice for this responsibility. The duties placed on the Medical Officer of Health should be based on the fact that he is an experienced administrator but with the added advantage that he is a medical specialist in his own field.

121. Preventive medicine in relation to the handicapped is concerned with two main problems. First to control or eliminate the disease causing the handicap. The second to mitigate the effects of the disease. The National Health Service Act, of 1946 (Section 28) makes it a duty of the local health authorities to provide "Care and After-care." The National Assistance Act (Section 29) makes it a duty of Welfare Committees of the County and County Borough Councils to promote the welfare of the blind, deaf or dumb and other persons "substantially and permanently" handicapped by illness, injury or congenital deformity and to provide residential accommodation for the aged and infirm and in some circumstances to assist the aged in their own homes. The Education Act of 1944 tackles the problem of the handicapped school child by defining eleven categories of children for whom special education must be provided by education authorities. The Children Act of 1948 singles out the homeless child to be dealt with by Children Committees of the same authority.

122. These four related functions, clearly part of one and the same problem, are allocated for the most part to four different committees of the same authority to cope with the administrative machinery of the Ministry of Labour, which under the Disabled Persons Act, 1944 is responsible for the placement of handicapped persons in industry. The focal point of all these problems is health, they are essentially the subject matter of social medicine, which teaches that all disease shall be prevented, checked in its earliest stages or it should at worst be rehabilitated with all expedition. Recent legislative changes have confounded the aim of preventive medicine. The need for classification and co-ordination is urgent. The Medical Officer of Health as a specialist in preventive and social medicine should be called upon to bring these scattered elements within his purview.

PART III

Advisory Duties on the Medical Aspect of Services for which he has no Executive Responsibility but which have a bearing on Community Health.

123. The boundaries of social medicine cannot be accurately defined, and there must be responsibilities which fall short of

executive control but necessitate a general supervision of medical aspects; schools for handicapped children, housing, water supply, sewage and refuse disposal, are examples. Generally such advice is sought by the official under whose control these services operate, but it is primarily the duty of the Medical Officer of Health to insist on being provided with such information as he thinks necessary to enable him to safeguard the health of the community.

PART IV

The General Duty of Studying all Matters Affecting the Health of his Area.

124 (A). "To acquire an accurate knowledge of the influences, social, environmental and industrial which may operate prejudicially to health in the area, and of the agencies, official and unofficial, whose help can be invoked in amelioration of such influences."* This wide duty is of great importance; it involves the Medical Officer of Health in enquiry into all the circumstances of his area and reporting thereon. It is doubtful whether full exercise has been given to this duty. Many reasons can be given for this relative failure to take full advantage of a statutory function that invests the Medical Officer of Health with almost limitless power for enquiry and study. The burden of developing hospital services and the increasing complications of committee work have no doubt been a deterrent.

(B). For any unified service for the protection of community health such as we wish to see developed, this function must be placed in the forefront, as is emphasised in the Ministry Memorandum quoted above; this would serve to stress the overall importance of our arrangements for protecting community health and would help to bring preventive and curative medicine into a truer perspective.

(C). The Medical Officer of Health should be afforded every facility to examine and appraise the work of all bodies, statutory and non-statutory, engaged in health work; he should not fear to criticise where necessary the work of other authorities operating in the health field.

(D). Research into the problems of community health should play an important role in the work of the Medical Officer of Health. The need for full statistical backing in unravelling the problems of epidemiology has been mentioned elsewhere. The opportunity to engage in research into the problems of occupational health would be one of the advantages of placing this service within the province of the Medical Officer of Health. The complexities of modern problems and the great new weapons which have been developed in the hands of the Medical Research Council and University departments emphasise the value of field research which the Medical Officer of Health can conduct. This work can with advantage be linked with University departments.

*Memorandum on the Duties of Medical Officers of Health, Ministry of Health, 1925.

